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Industrial Micro Computers

User Manual
IMP-A122/A152/A172/A192
Industrial Panel PC

Warning!

This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instructions manual may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

Electric Shock Hazard – Do not operate the machine with its back cover removed. There are dangerous high voltages inside.

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Table of Contents

Chapter 1: Getting Started

1.1 Specifications 1
1.2 Dimensions 2
1.3 Brief Description of the IMP-A1x2 6

Chapter 2: BIOS Setup

2.1 Operations after POST Screen 7
2.2 BIOS Setup Utility 9
2.3 System Overview 10
2.4 Advanced Settings 11
2.5 Advanced PCI/PnP Settings 20
2.6 Boot Settings 23
2.7 Security Settings 25
2.8 Advanced Chipset Settings 27
2.9 Exit Options 31

Chapter 3: Installation

3.1 Configuring Penmount Windows 2000/XP/Vista/7 Driver 33

Chapter 4: Software

4.1 Software Functions 42
4.2 Software Function Descriptions 43

Appendices

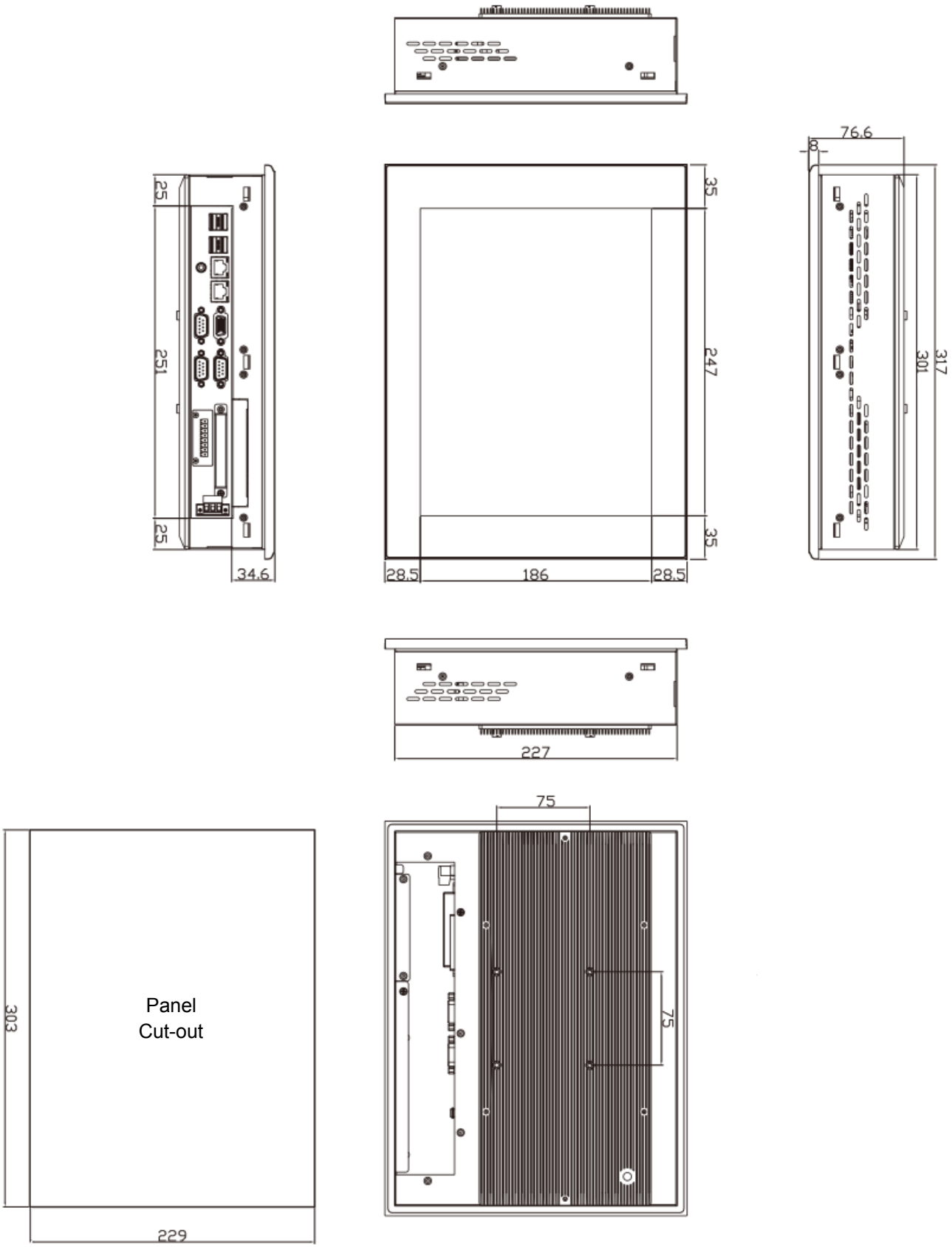
A Panelmounting 49

Chapter 1: Getting Started

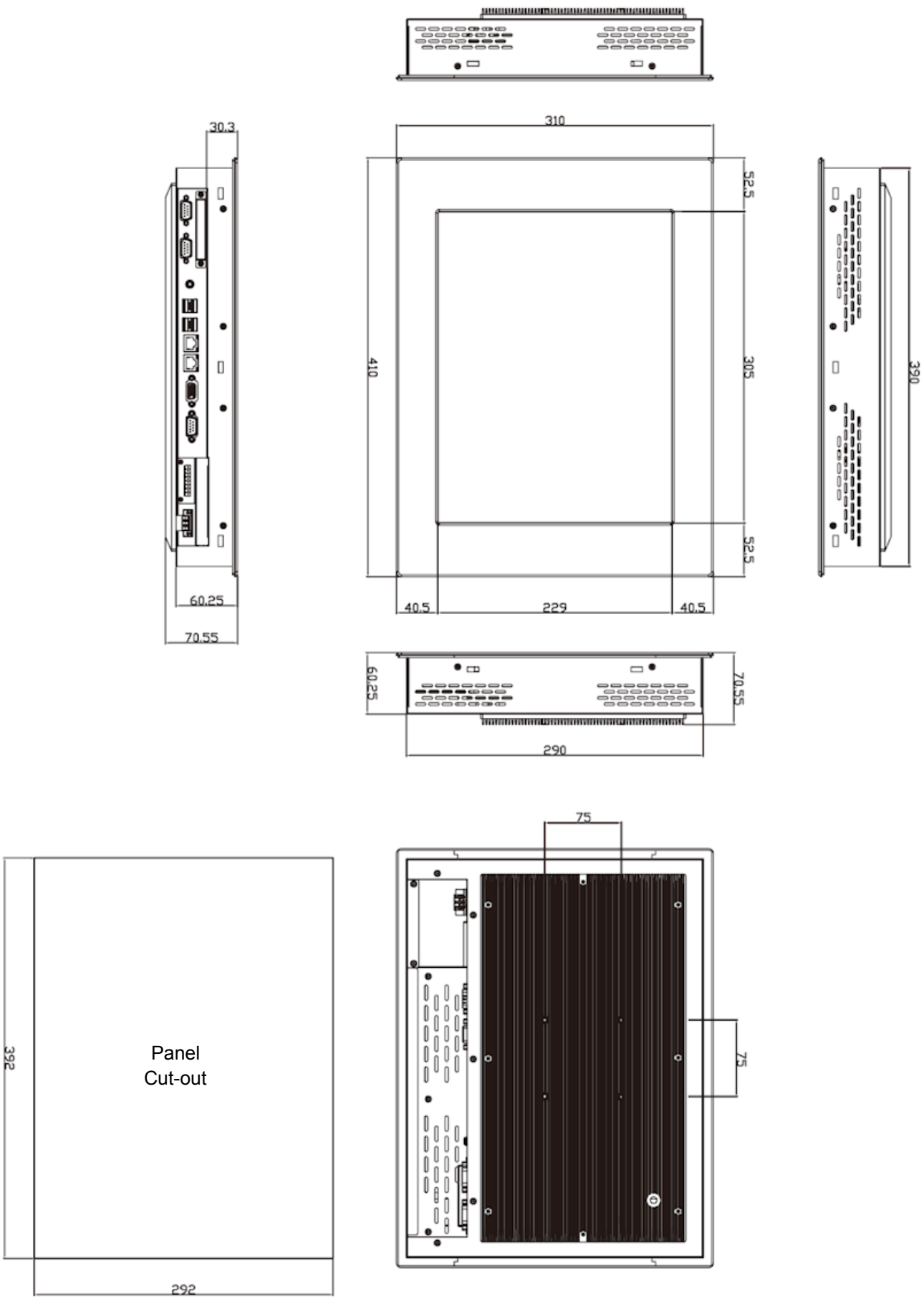
1.1 Specifications

Model / Specs	IMP-A122[G]T	IMP-A152[G]T	IMP-A172[G]T	IMP-A192T
CPU	Intel Atom D525 1.8GHz processor FSB 800MHz			
Chipset	Intel ICH8M			
System Memory	1 x 204 Pin SO-DIMM DDR3 800GHz, up to 2GB SDRAM			
Display Type	12” TFT	15” TFT	17” TFT	19” TFT
Resolution	800 x 600	1024 x 768	1280x1024	1280x1024
Max. Colors	262k	16.2M	16.2M	16.2M
Viewing Angle	H:130° / V:110°	H:160° / V:140°	H:170° / V:160°	H:170° / V:160°
Luminance (cd/m^2)	350	400	550	350
Backlight Lifetime	50,000 hrs			
Touchscreen Type	Analog Resistive on ‘T’ models, GFG on ‘GT’ models			
External Ports	4 x USB 2.0, 2 x Gigabit LAN, 1 x VGA, 2 x RS-232, 1 x RS-433/485, Audio			
General Purpose I/O Port	1 x 8 Pin terminal block 2in/2out GPIO			
Storage	1 x 160GB swappable HDD			
Expansion Slots	None			
Power Supply	11 ~ 32VDC			
Construction	Heavy-duty steel front panel and housing			
IP Rating	NEMA4/IP65 certified front			
Mounting	Panel / VESA75	Panel / VESA75	Panel / VESA75	Panel / VESA100
Dimension (WxHxD) mm	317 x 243 x 76.6	410 x 310 x 70.6	439 x 348 x 71.1	484 x 400 x 74.5
Operating Temperature	0~50^{o}C			
Storage Temperature	-30~60^{o}C			
Relative Humidity	10~90% @40^{o}C non-condensing			
Vibration	5~17Hz, 0.1” double amplitude displacement / 17~640Hz, 1.5G acceleration peak to peak			
Relative Humidity	10G acceleration peak to peak (11 millimeters)			
Certificate	Meet CE / FCC Class A			

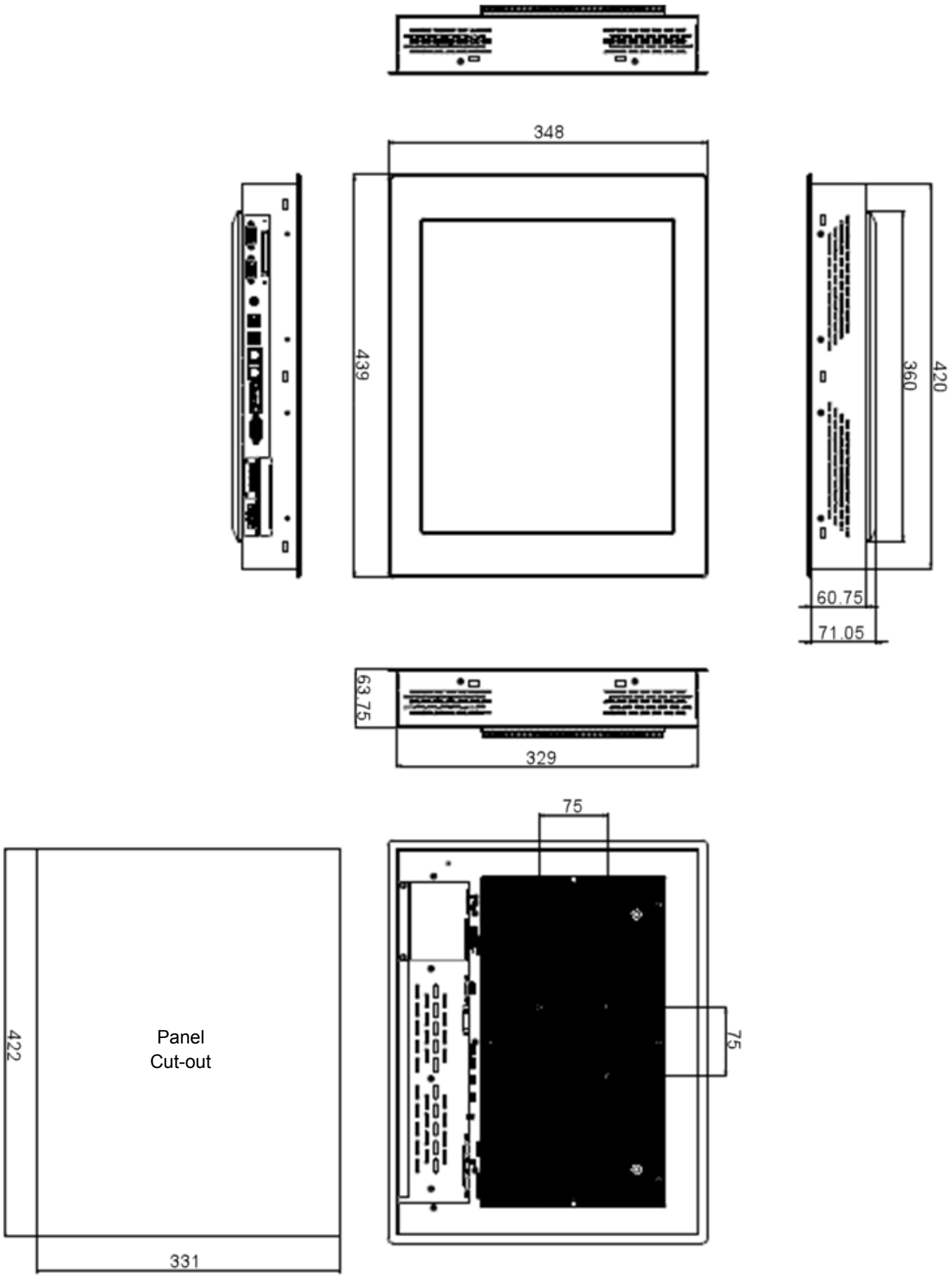
1.2 Dimensions



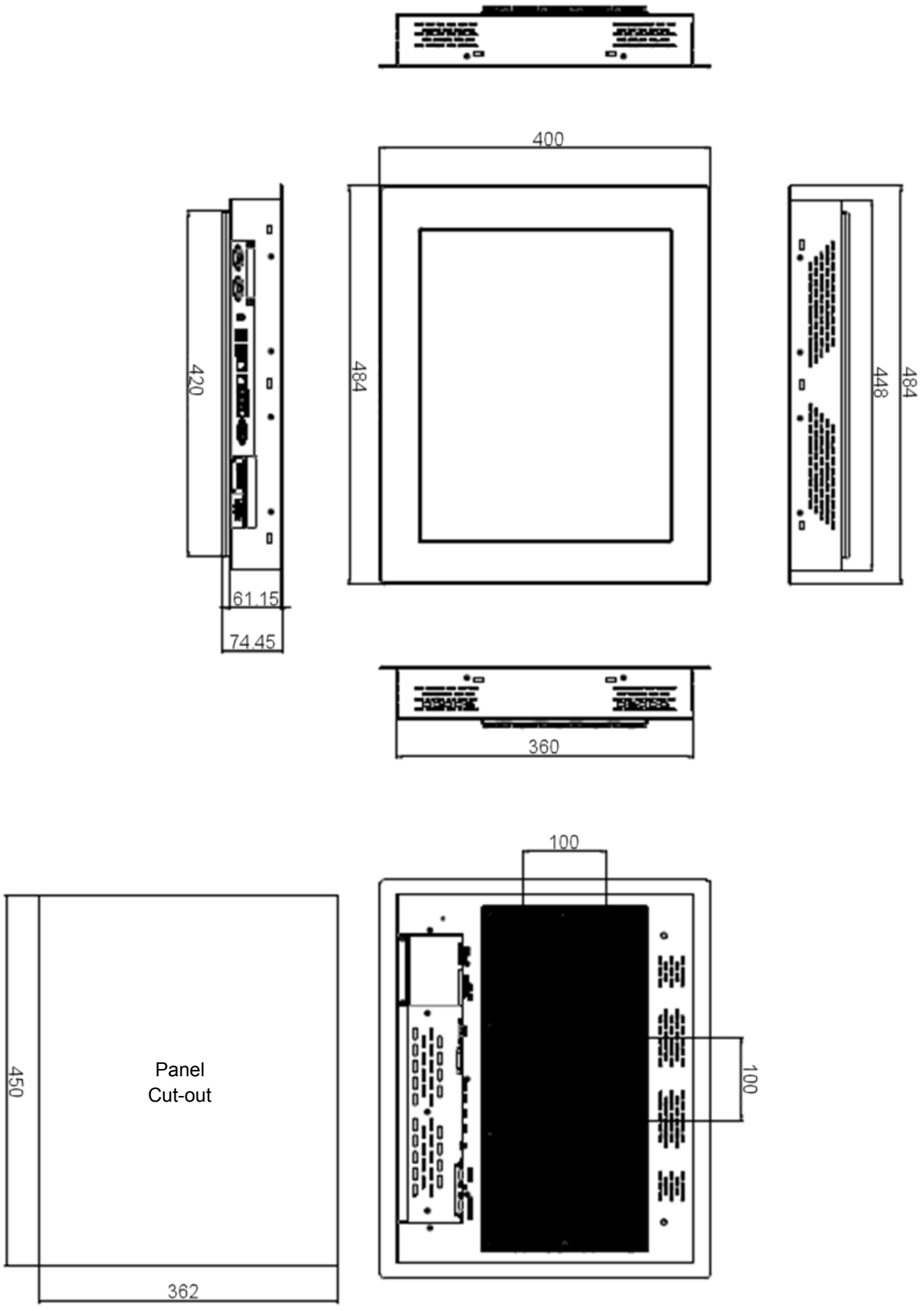
Dimensions of the IMP-A122



Dimensions of the IMP-A152



Dimensions of the IMP-A172



Dimensions of the IMP-A192

Chapter 1: Getting Started

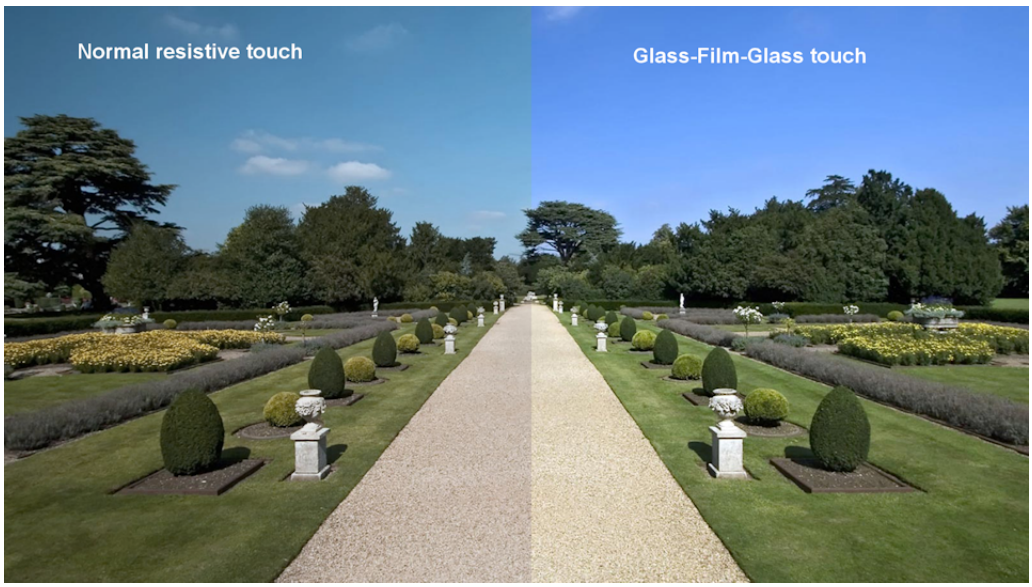
1.3 Brief Description of the IMP-A1x2

The IMP-A122/A152/A172/A192 are fanless / compact panel-mount industrial PCs, which come with a 12" (luminance of 350 cd/m²), 15" (luminance of 400 cd/m²), 17" (luminance of 550 cd/m²) or 19" (luminance of 350 cd/m²) TFT LCD. They are powered by an Intel Atom D525 1.8 GHz dual core processor.

These industrial panel PCs also feature three COM ports, four USB 2.0 ports, one 2.5” HDD drive, a wide range DC 11~32V power input, etc.

The 'T' models are equiped with an analog resistive touch screen while the 'GT' models come with a GFG (Glass-Film-Glass) touch screen.

GFG touch screens are not only resistant to scratch and abrasion but also to most chemicals. Apart from that, glass is transparent and does not impair the brilliance of the picture at all.

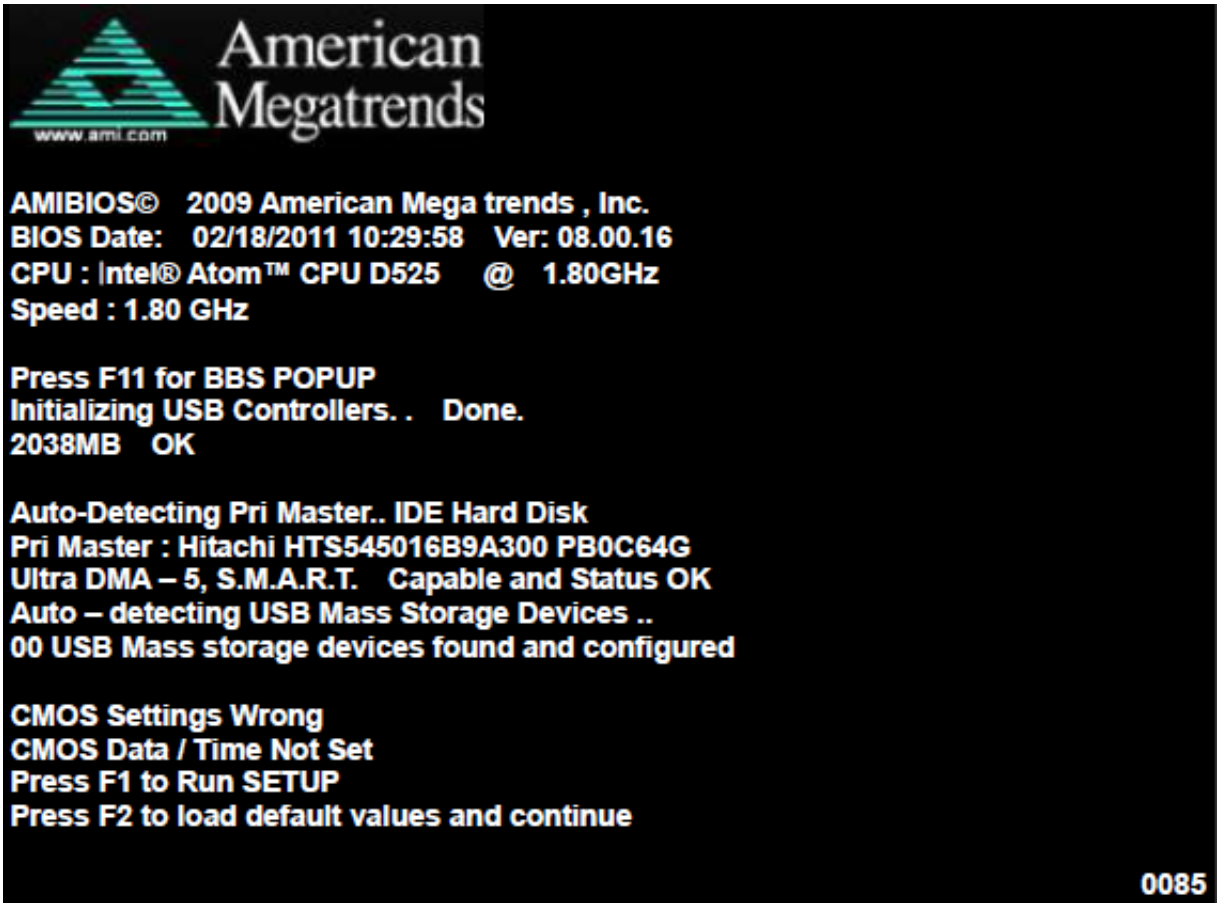


Front and rear view of the IMP-A172

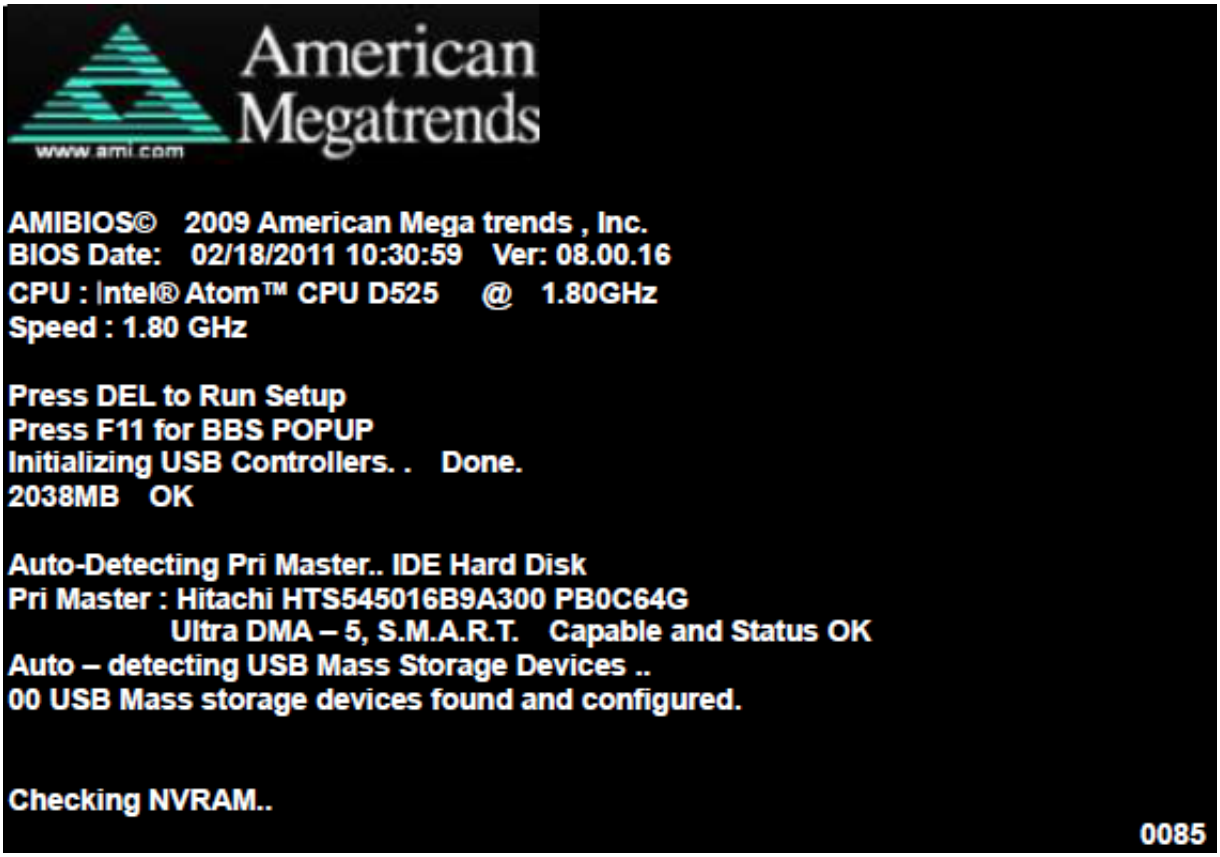
Chapter 2: BIOS Setup

2.1 Operations after POST Screen

After CMOS discharge or BIOS flashing operation, the system will display the following screen for your further operation. Press F2 key to continue or F1 key to enter CMOS Setup.


American Megatrends
www.ami.com
AMIBIOS© 2009 American Mega trends , Inc.
BIOS Date: 02/18/2011 10:29:58 Ver: 08.00.16
CPU : Intel® Atom™ CPU D525 @ 1.80GHz
Speed : 1.80 GHz
Press F11 for BBS POPUP
Initializing USB Controllers. . Done.
2038MB OK
Auto-Detecting Pri Master.. IDE Hard Disk
Pri Master : Hitachi HTS545016B9A300 PB0C64G
Ultra DMA – 5, S.M.A.R.T. Capable and Status OK
Auto – detecting USB Mass Storage Devices ..
00 USB Mass storage devices found and configured
CMOS Settings Wrong
CMOS Data / Time Not Set
Press F1 to Run SETUP
Press F2 to load default values and continue
0085

After optimizing and exiting CMOS Setup, the POST screen displayed for the first time is as follows and includes basic information on BIOS, CPU, memory, and storage devices.


American Megatrends
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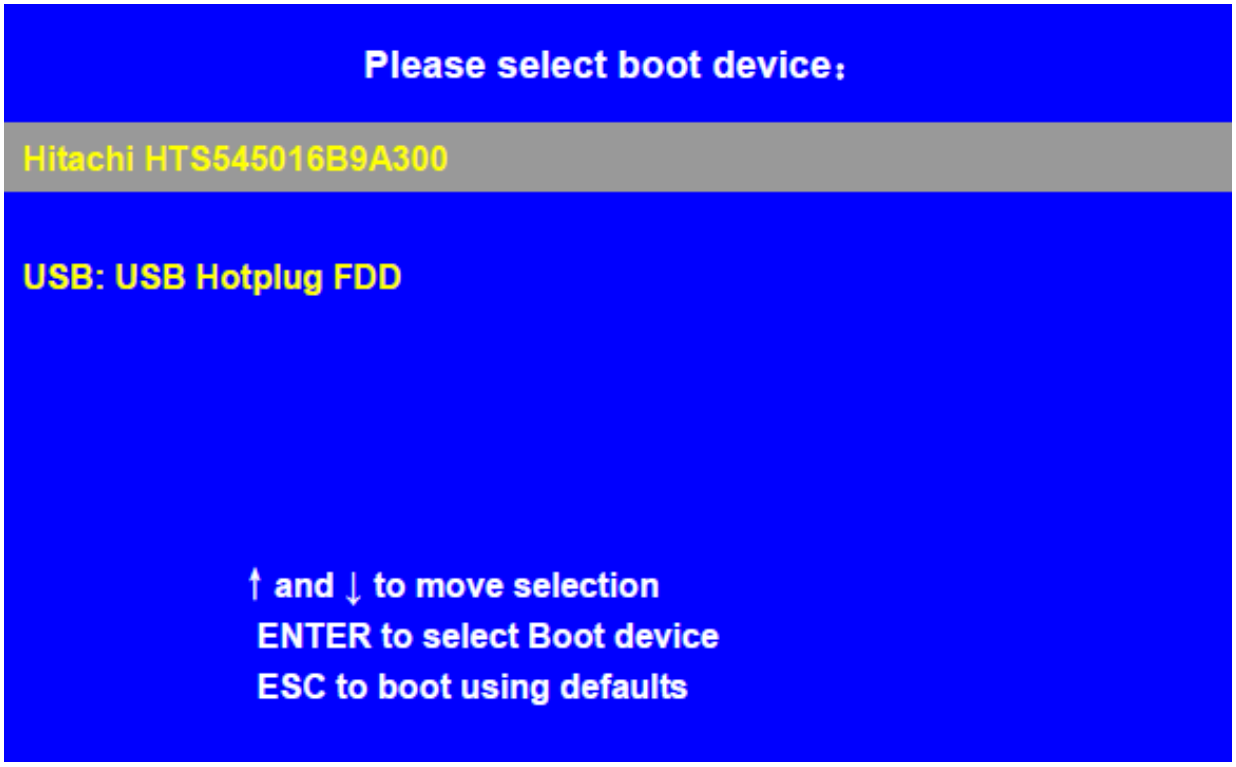
AMIBIOS© 2009 American Mega trends , Inc.
BIOS Date: 02/18/2011 10:30:59 Ver: 08.00.16
CPU : Intel® Atom™ CPU D525 @ 1.80GHz
Speed : 1.80 GHz
Press DEL to Run Setup
Press F11 for BBS POPUP
Initializing USB Controllers. . Done.
2038MB OK
Auto-Detecting Pri Master.. IDE Hard Disk
Pri Master : Hitachi HTS545016B9A300 PB0C64G
Ultra DMA – 5, S.M.A.R.T. Capable and Status OK
Auto – detecting USB Mass Storage Devices ..
00 USB Mass storage devices found and configured.
Checking NVRAM..
0085

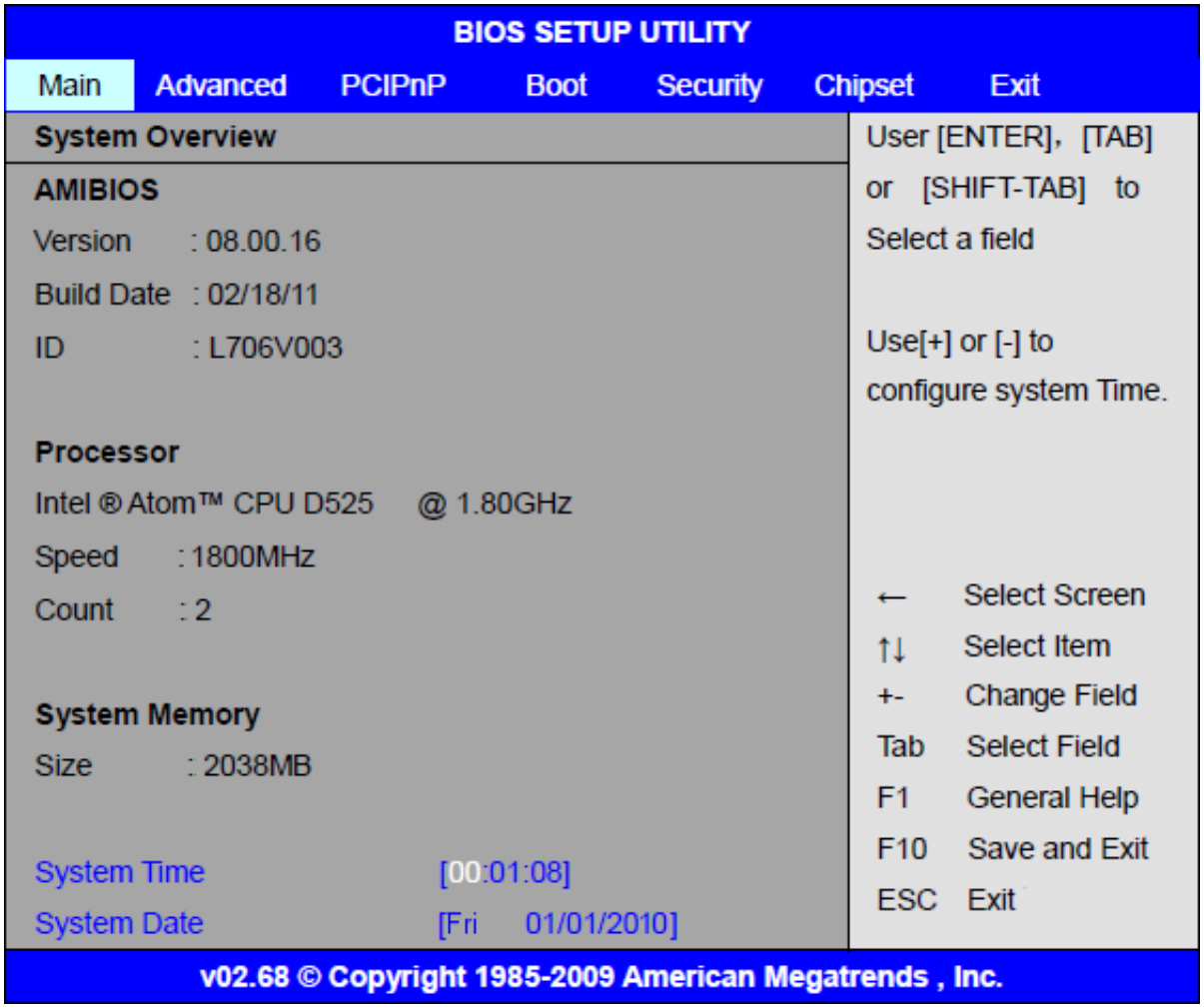
Press **F11** key to enter Boot Menu during POST, as show by the following figure.


Please select boot device:
Hitachi HTS545016B9A300
USB: USB Hotplug FDD
↑ and ↓ to move selection
ENTER to select Boot device
ESC to boot using defaults

Chapter 2: BIOS Setup

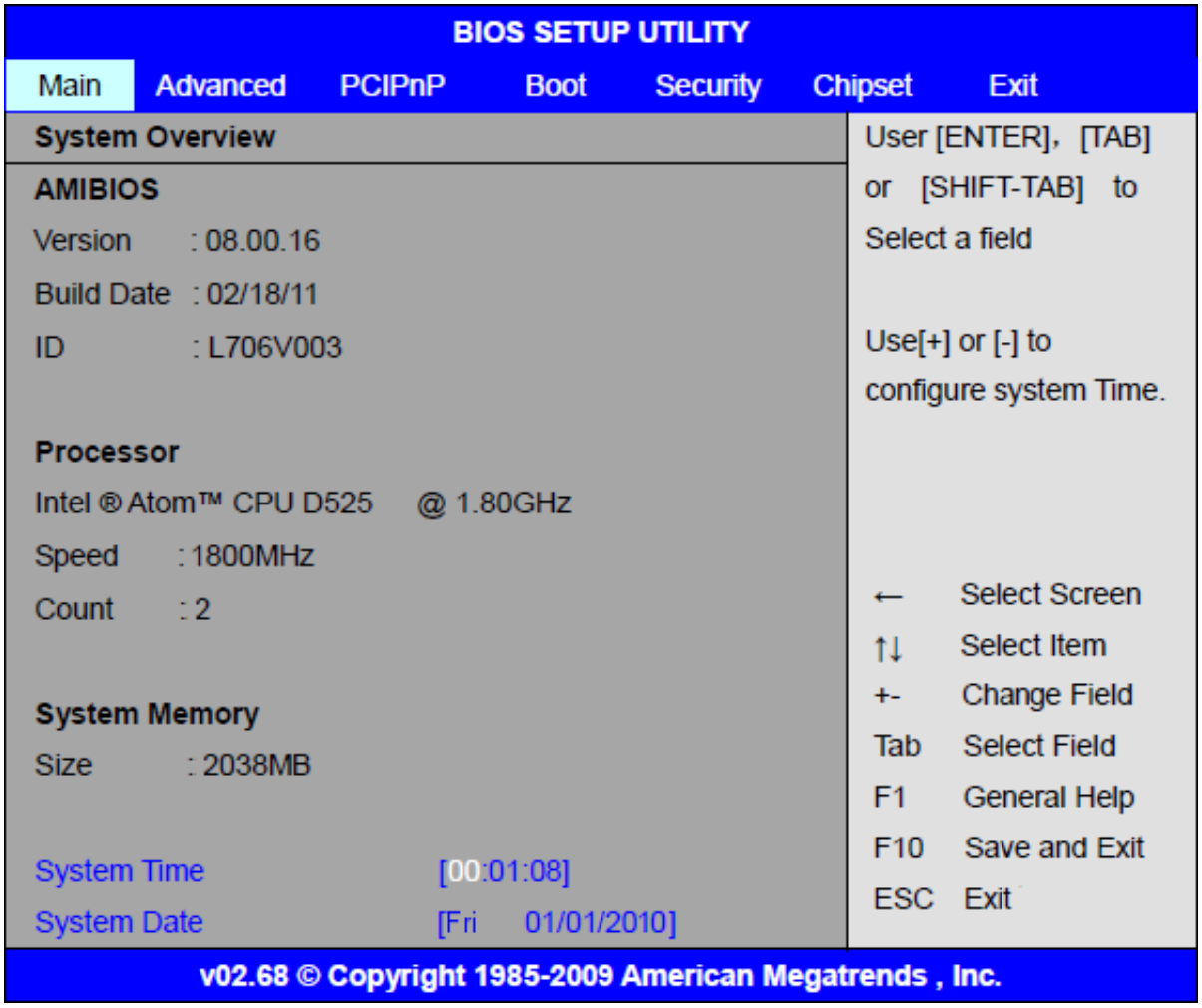
2.2 BIOS Setup Utility

Press [Del] key to enter BIOS Setup utility during POST, and then a main menu containing system summary information will appear.



Chapter 2: BIOS Setup

2.3 System Overview



System Time:

Set the system time, the time format is:

Hour:	0 to 23
Minute:	0 to 59
Second:	0 to 59

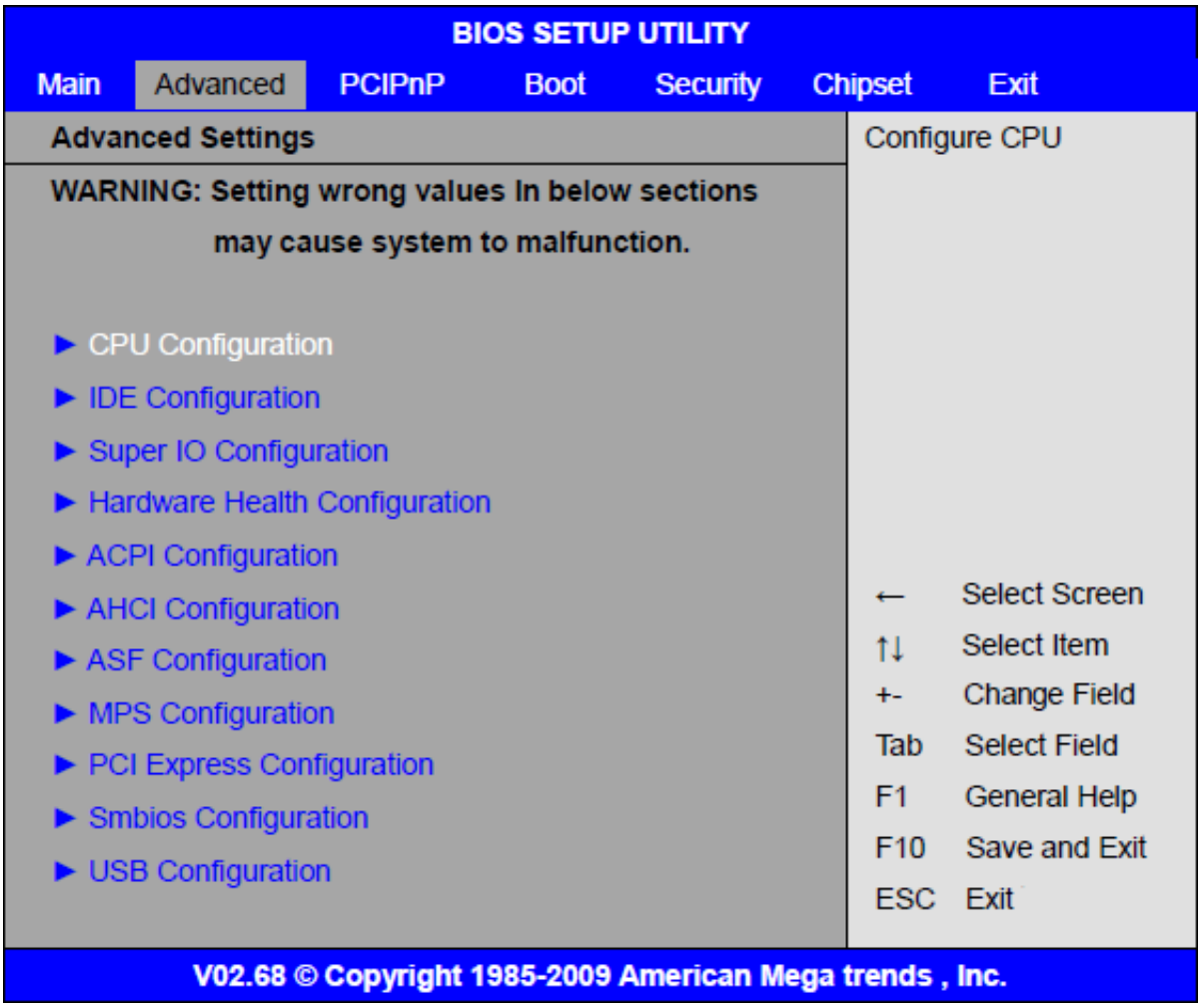
System date:

Set the system date, the date format is:

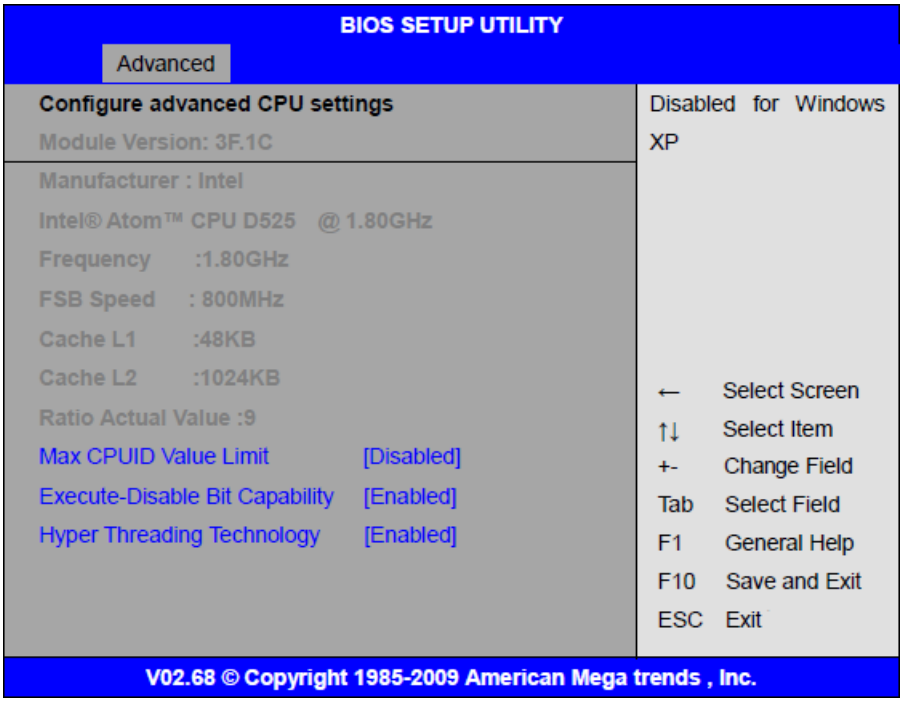
Day:	Note that ‘Day’ automatically changes when you set the date.
Month:	0 to 12
Date:	0 to 31
Year:	2010 to 2099

Chapter 2: BIOS Setup

2.4 Advanced Settings



2.4.1 CPU Configuration



Max CPUID Value Limit:

[Disabled]

[Enabled]

Execute Disable Bit Capability:

[Disabled]

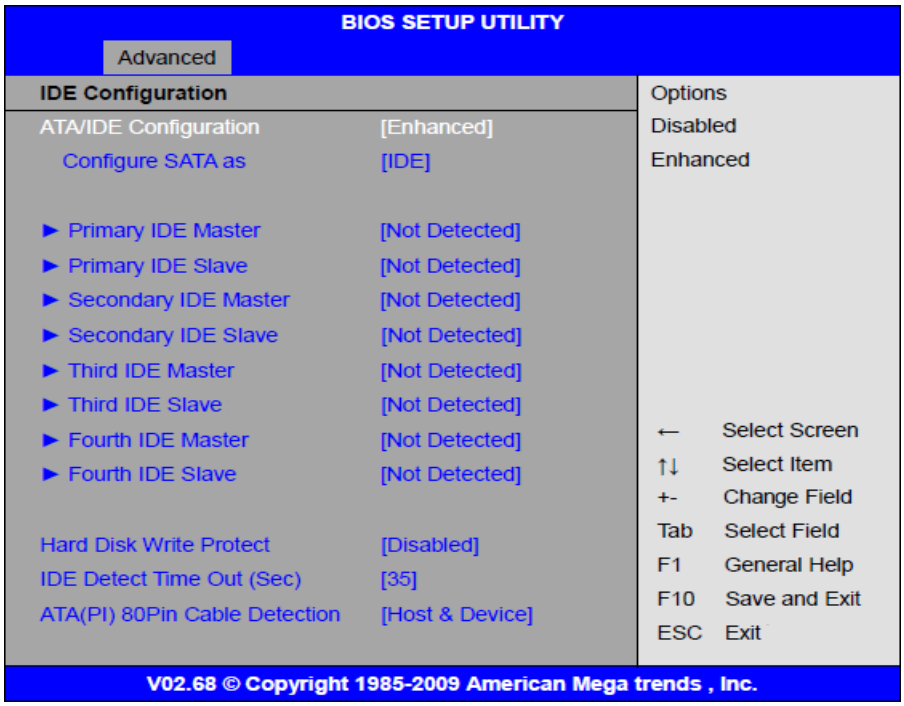
[Enabled]

Hyper Threading Technology:

[Disabled]

[Enabled]

2.4.2 IDE Configuration


BIOS SETUP UTILITY
Advanced
IDE Configuration
ATA/IDE Configuration [Enhanced]
Configure SATA as [IDE]
► Primary IDE Master [Not Detected]
► Primary IDE Slave [Not Detected]
► Secondary IDE Master [Not Detected]
► Secondary IDE Slave [Not Detected]
► Third IDE Master [Not Detected]
► Third IDE Slave [Not Detected]
► Fourth IDE Master [Not Detected]
► Fourth IDE Slave [Not Detected]
Hard Disk Write Protect [Disabled]
IDE Detect Time Out (Sec) [35]
ATA(PI) 80Pin Cable Detection [Host & Device]
Options
Disabled
Enhanced
← Select Screen
↑↓ Select Item
+- Change Field
Tab Select Field
F1 General Help
F10 Save and Exit
ESC Exit
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ATA/IDE Configuration:

[Enhanced]

[Disabled]

Configure SATA as:

[IDE]

[AHCI]

Hard Disk Write Protect:

[Disabled]

[Enabled]

IDE Detect Time Out:

[35]

[0, 5, 10, 15, 20, 25, 30, 35]

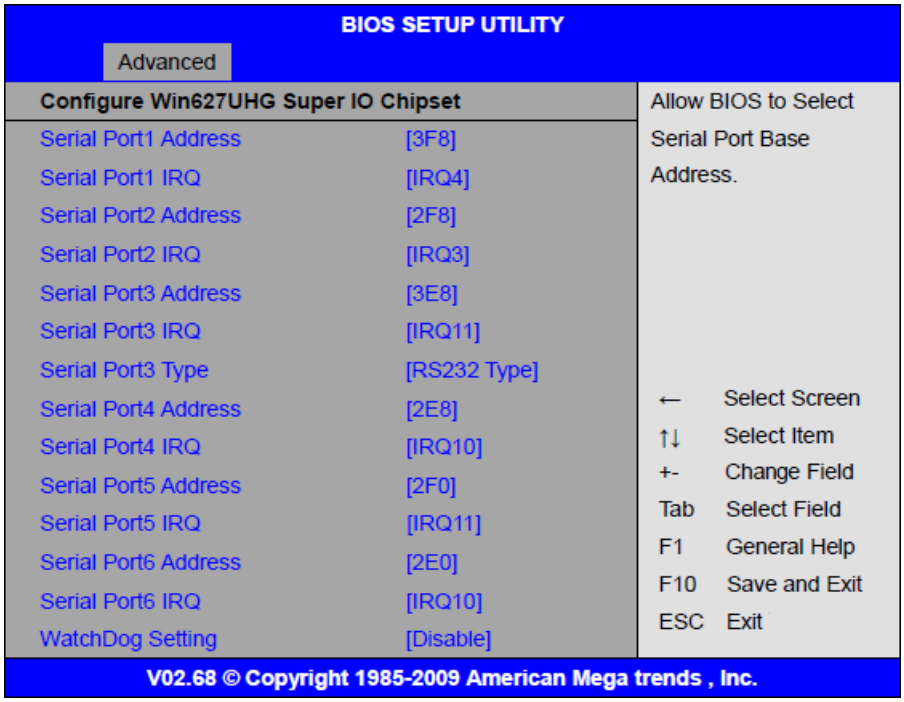
ATA(PI) 80Pin Cable Detection:

[Host & Device]

[Host]

[Device]

2.4.3 Super IO Configuration


BIOS SETUP UTILITY
Advanced
Configure Win627UHG Super IO Chipset
Serial Port1 Address [3F8]
Serial Port1 IRQ [IRQ4]
Serial Port2 Address [2F8]
Serial Port2 IRQ [IRQ3]
Serial Port3 Address [3E8]
Serial Port3 IRQ [IRQ11]
Serial Port3 Type [RS232 Type]
Serial Port4 Address [2E8]
Serial Port4 IRQ [IRQ10]
Serial Port5 Address [2F0]
Serial Port5 IRQ [IRQ11]
Serial Port6 Address [2E0]
Serial Port6 IRQ [IRQ10]
WatchDog Setting [Disable]
Allow BIOS to Select Serial Port Base Address.
← Select Screen
↑↓ Select Item
+- Change Field
Tab Select Field
F1 General Help
F10 Save and Exit
ESC Exit
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Serial Port3 Type*:

[RS232 Type]

[RS485 Type]

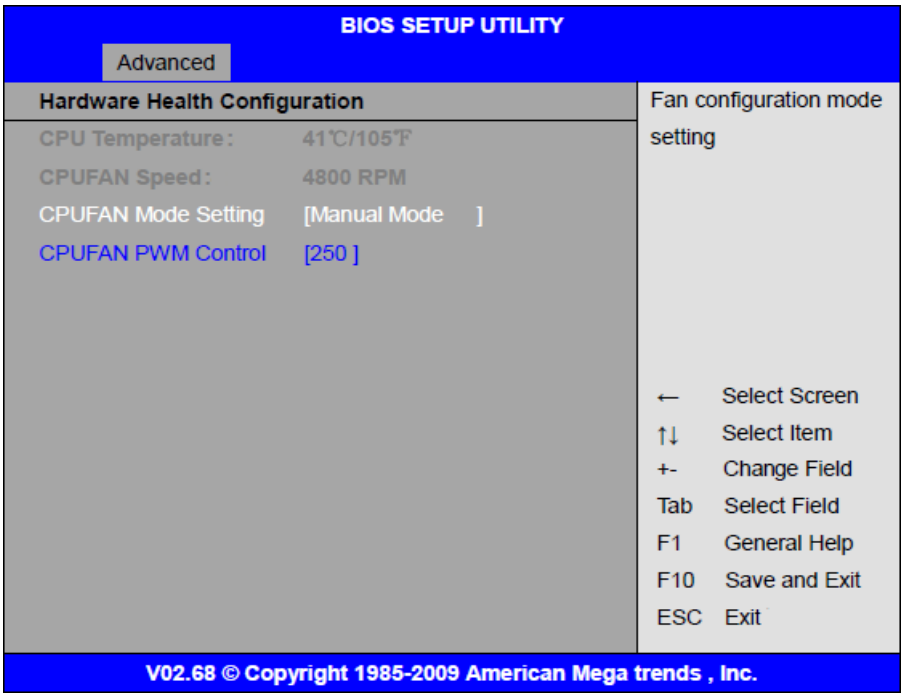
WatchDog Setting:

[Disable]

[10sec, 20sec, 30sec, 40sec, 1min, 2min, 4min]

*Select [RS485 Type] for RS485 or RS422 Mode

2.4.4 Hardware Health Configuration



CPU Temperature:

Shows you the current CPU temperature.

CPUFAN Speed:

Shows you the current CPU Fan operating speed.

CPUFAN Mode Setting:

[Manual Mode]

[Thermal Cruise Mode]

[Speed Cruise Mode]

[Smart Fan 3 Mode]

2.4.5 ACPI Configuration

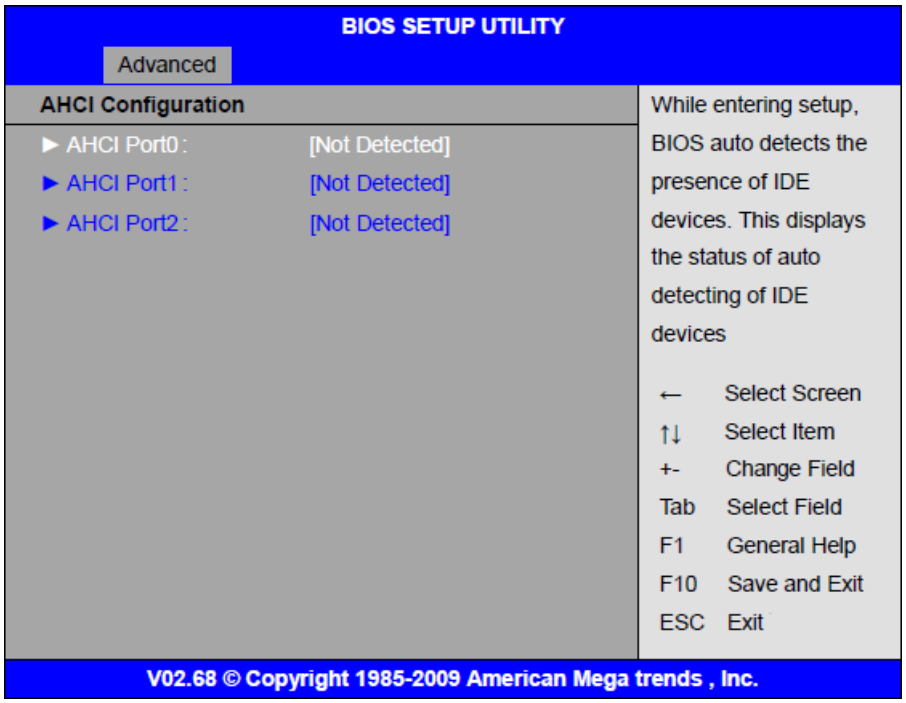
Section for Advanced ACPI Configuration

Options:

[Advanced ACPI Configuration]

[Chipset ACPI Configuration]

2.4.6 AHCI Configuration


BIOS SETUP UTILITY
Advanced
AHCI Configuration
► AHCI Port0 : [Not Detected]
► AHCI Port1 : [Not Detected]
► AHCI Port2 : [Not Detected]
While entering setup, BIOS auto detects the presence of IDE devices. This displays the status of auto detecting of IDE devices
← Select Screen
↑↓ Select Item
+- Change Field
Tab Select Field
F1 General Help
F10 Save and Exit
ESC Exit
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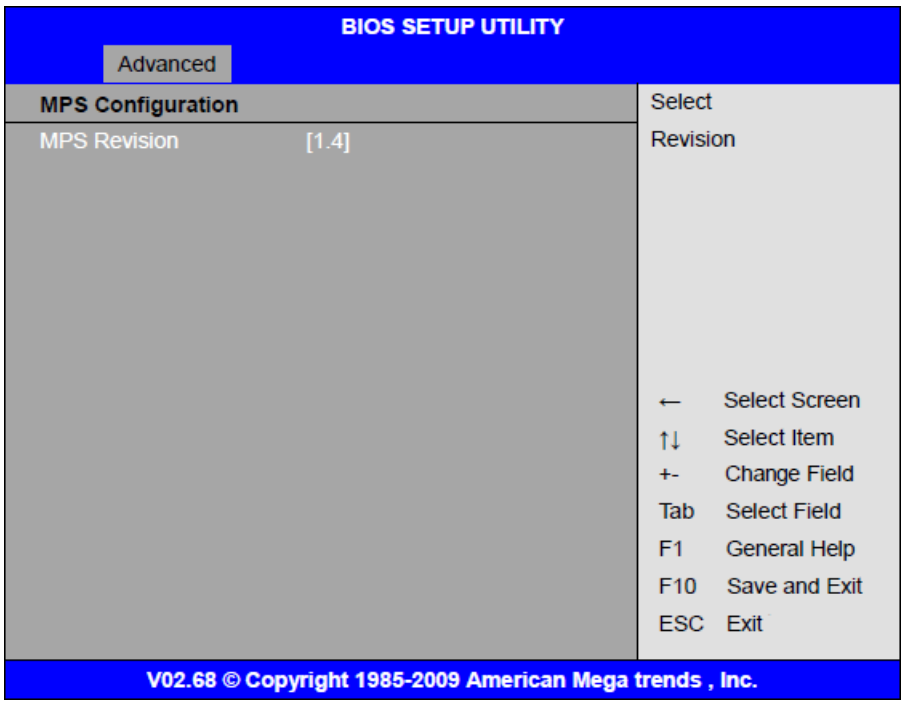
While entering setup, BIOS auto detect the presence of IDE devices. This displays the status of auto detecting op IDE devices.

2.4.7 MPS Configuration



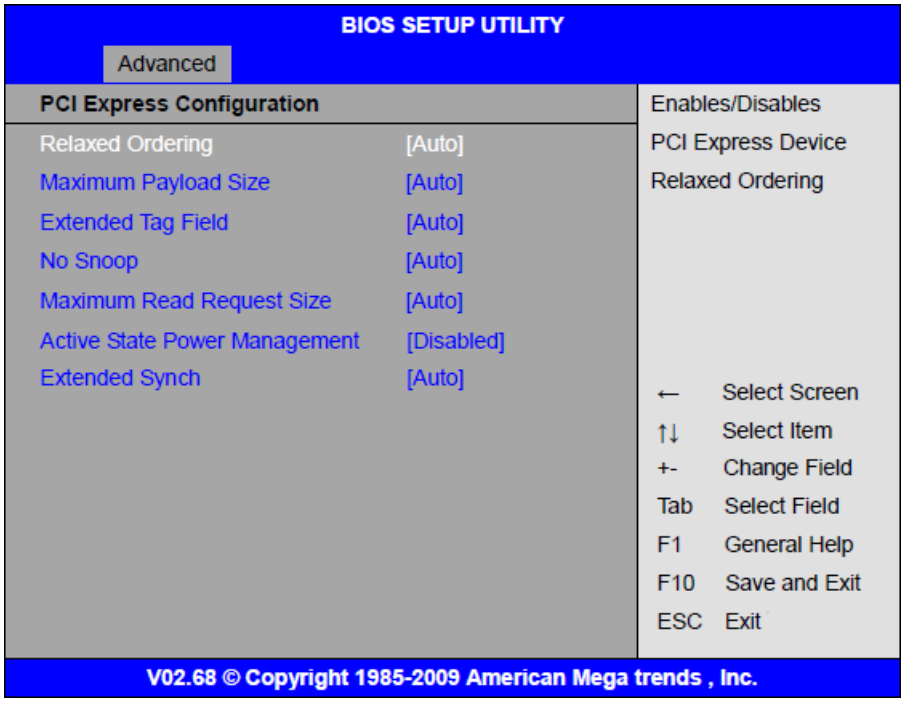
Configure the Multi-Processor Table.

MPS Revision:

[1.4]

[1.1]

2.4.8 PCI Express Configuration



Relaxed Ordering:

[Auto]

[Disabled]

[Enabled]

Maximum Payload Size:

[Auto]

[128/256/512/1024/2048/4096 Bytes]

Set Maximum Payload or allow the System BIOS to select the value.

Extended Tag Field:

[Auto]

[Disabled]

[Enabled]

No Snoop:

[Auto]

[Disabled]

[Enabled]

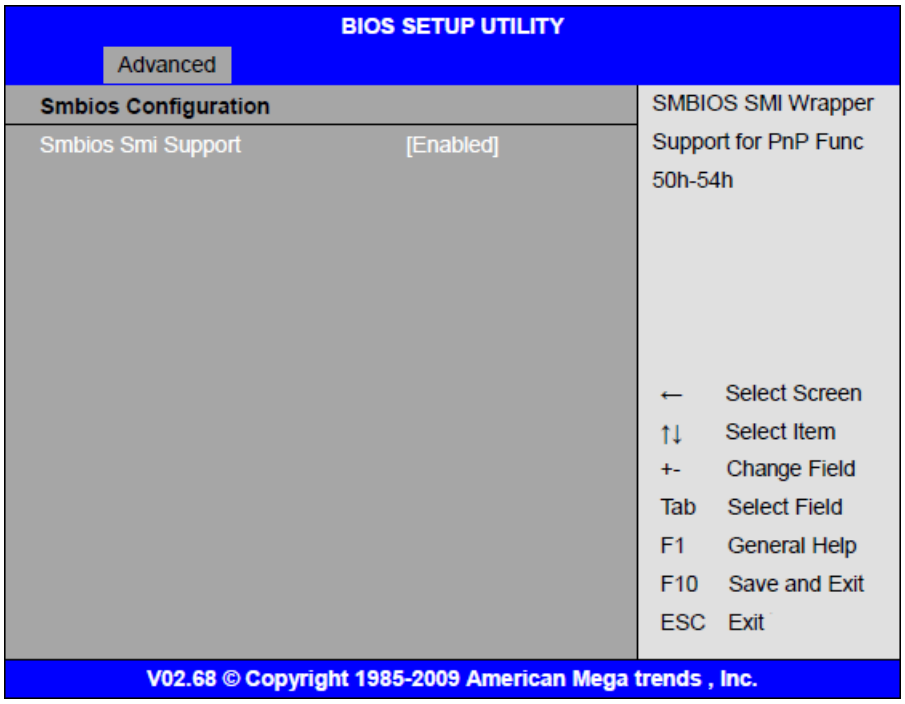
Maximum Read Request Size:

[Auto]

[128/256/512/1024/2048/4096 Bytes]

Set Maximum Read Request Size of PCI Express Device or allow the System BIOS to select the value.

2.4.9 Smbios Configuration

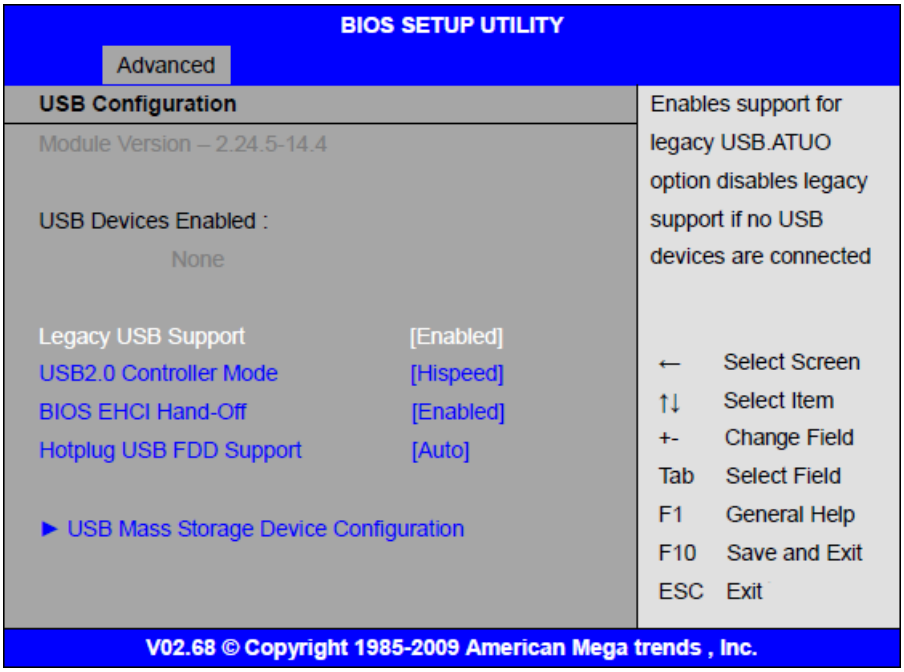


Smbios Smi support:

[Enabled]

[Disabled]

2.4.10 USB Configuration


BIOS SETUP UTILITY
Advanced
USB Configuration
Module Version – 2.24.5-14.4
USB Devices Enabled :
None
Legacy USB Support [Enabled]
USB2.0 Controller Mode [Hispeed]
BIOS EHCI Hand-Off [Enabled]
Hotplug USB FDD Support [Auto]
► USB Mass Storage Device Configuration
Enables support for legacy USB.ATUO option disables legacy support if no USB devices are connected
← Select Screen
↑↓ Select Item
+- Change Field
Tab Select Field
F1 General Help
F10 Save and Exit
ESC Exit
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Legacy USB support:

[Enabled]

[Disabled]

Legacy USB support:

[Enabled]

[Disabled]

USB2.0 Controller Mode:

[HiSpeed]

[FullSpeed]

BIOS EHCI Hand-Off:

[Enabled]

[Disabled]

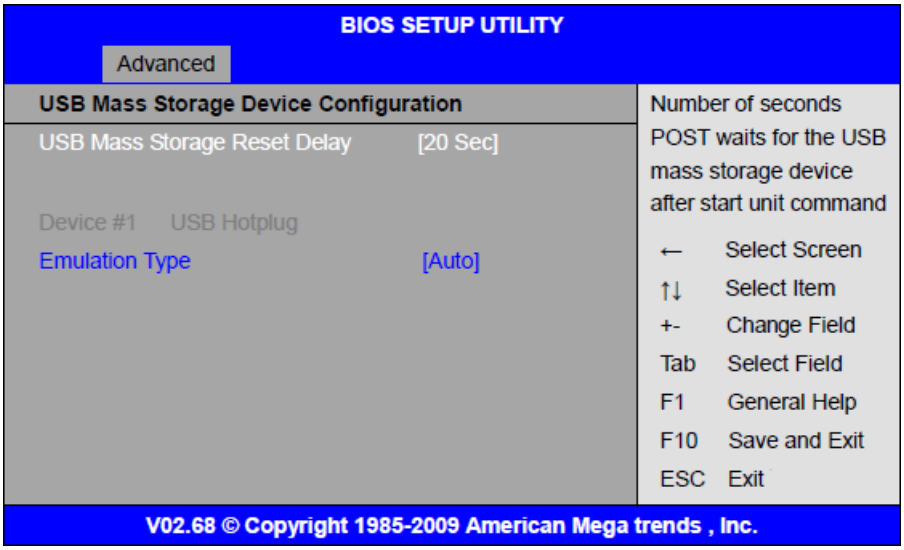
Hotplug USB FDD support:

[Auto]

[Disabled]

[Enabled]

USB Mass Storage Device Configuration:


BIOS SETUP UTILITY
Advanced
USB Mass Storage Device Configuration
USB Mass Storage Reset Delay [20 Sec]
Device #1 USB Hotplug
Emulation Type [Auto]
Number of seconds POST waits for the USB mass storage device after start unit command
← Select Screen
↑↓ Select Item
+- Change Field
Tab Select Field
F1 General Help
F10 Save and Exit
ESC Exit
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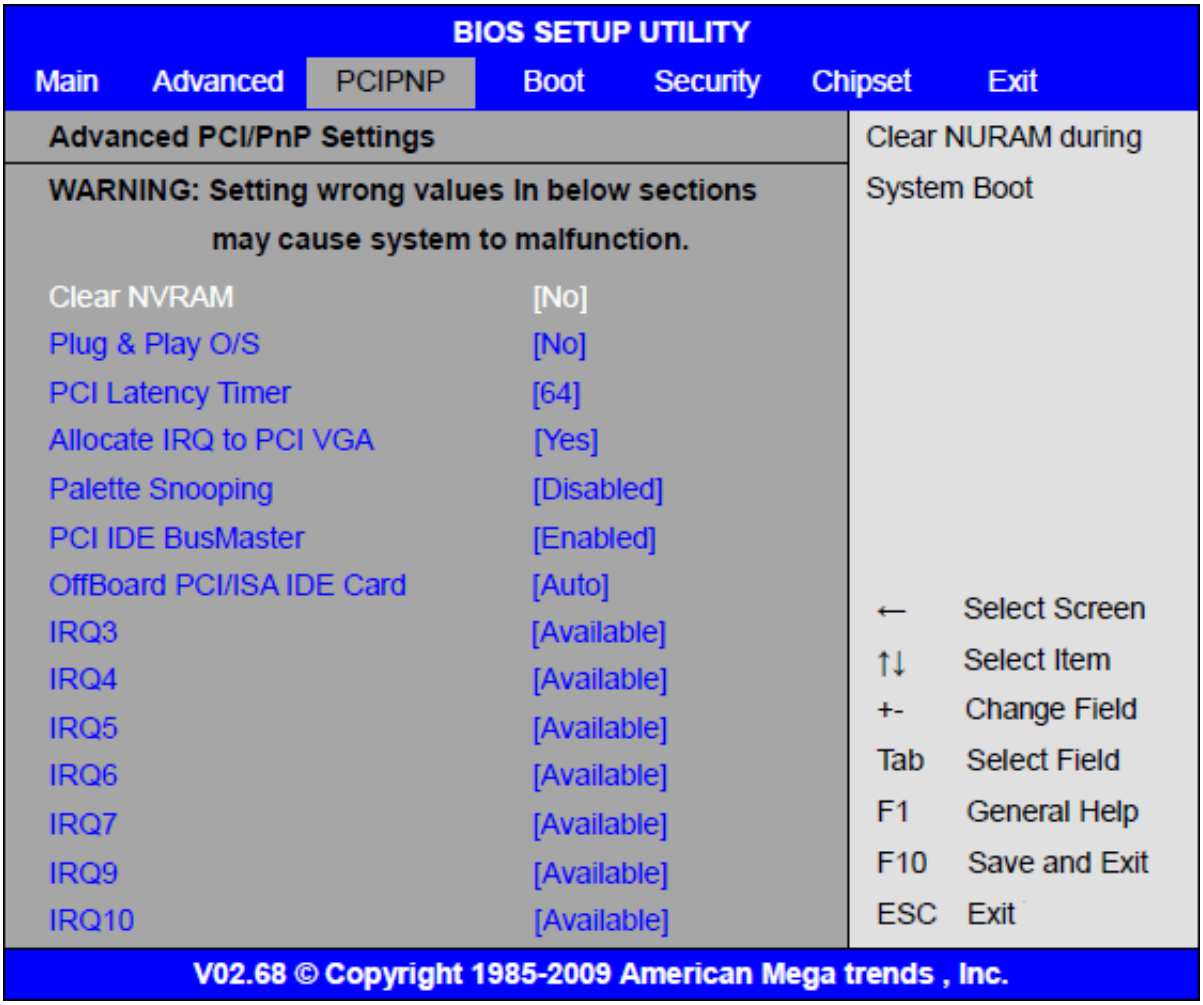
Chapter 2: BIOS Setup

2.5 Advanced PCI/PnP Settings

This part describes configurations to be made on the PCI bus system. PCI, short for Peripheral Component Interface, is a computer bus that allows I/O to operate nearly as fast as the CPU itself. Some technical terms will be mentioned here. **We recommend that non-professional user do not change the factory default settings.**



Clear NVRAM:

[No]

[Yes]

Plug & Play OS:

[No]

[Yes]

PCI Latency Timer:

[64]

[32]

[96]

[128]

[160]

[192]

[224]

[248]

Allocat IRQ to PCI/VGA:

[Yes]

[No]

Palette Snooping:

[Disable]

[Enable]

PCI IDE BusMaster:

[Disable]

[Enable]

Palette Snooping:

[Disable]

[Enable]

OffBoard PCI/ISA IDE Card:

Some PCI IDE cards may require to set the number of the PCI number that is holding the card. ‘Auto’ works for most PCI IDE cards.

[Auto]

[PCI Slot1]

[PCI Slot2]

[PCI Slot3]

[PCI Slot4]

[PCI Slot5]

[PCI Slot6]

IRQ3/4/5/7/9/10/11/14/15:

[Available]

[Reserved]

Available: Specified IRQ is available to be used by PCI/PnP devices.
Reserved: Specified IRQ is reserved for use by legacy ISA devices.

DMA Channel 0/1/3/5/6/7:

[Available]

[Reserved]

Available: Specified DMA is available to be used by PCI/PnP devices.
Reserved: Specified DMA is reserved for use by legacy ISA devices.

Reserved Memory Size:
Size of memory block to reserve for legacy ISA devices.

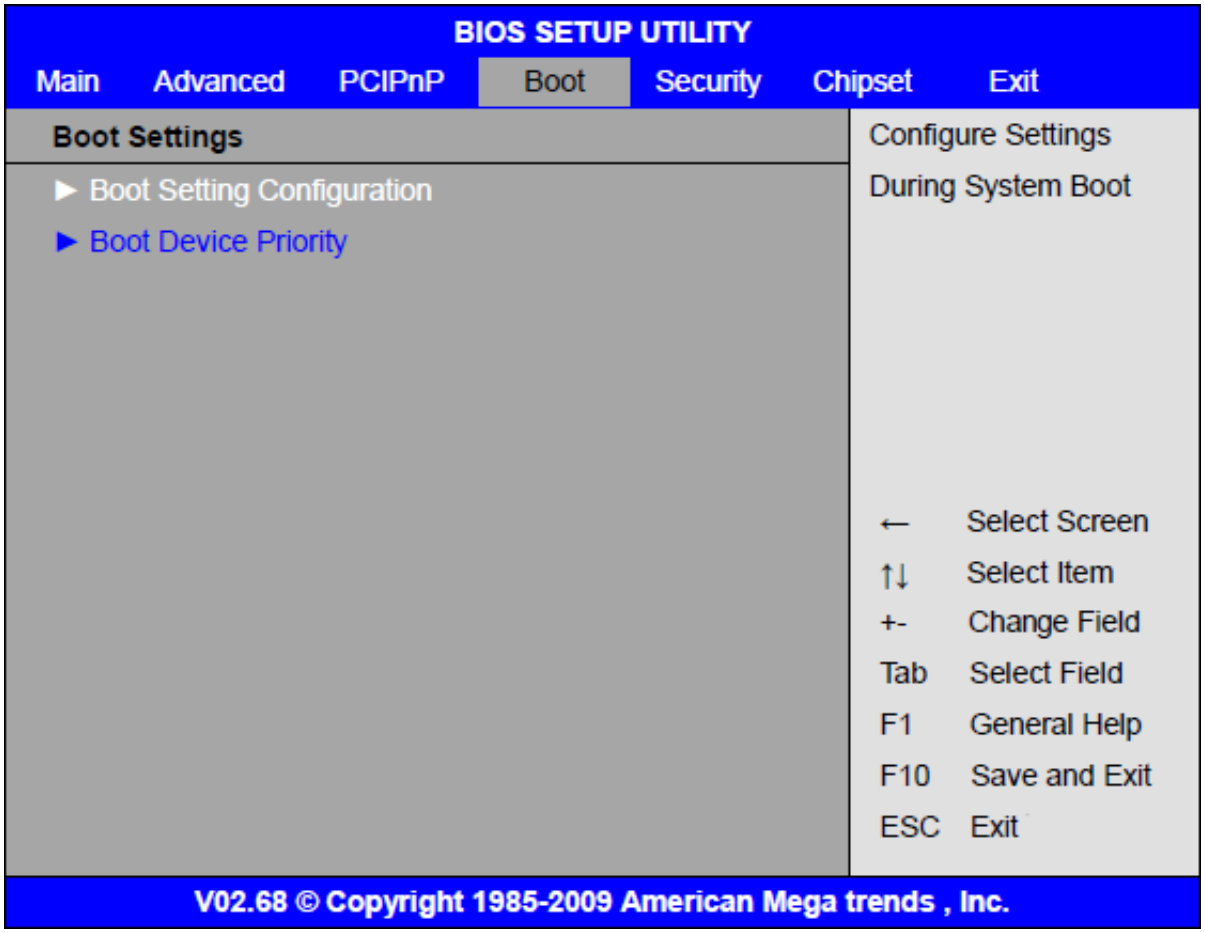
[Disabled]

[16]

[32k]

[64k]

2.6 Boot Settings



Boot Setting Configuration:

Quick Boot:
Allows BIOS to skip certain tests while booting. This will decrease the time needed to boot the system.

[Enabled]

[Disabled]

Quiet Booty:

[Disabled]

[Enabled]

Disabled: Displays normal POST messages.
Enabled Display OEM logo instead of POST messages.

AddOn ROM Display Mode:
Set display mode for Option ROM.

[Force BIOS]

[Keep current]

Bootup Num-Lock:
Select Power-on state for Numlock.

[On]

[Off]

PS/2 Mouse Support:
Select support for PS/2 Mouse.

[Auto]

[Enabled]

[Disabled]

Wait For ‘F1’ If Error:
Wait for F1 key to be pressed if an error occurs.

[Enabled]

[Disabled]

Hit ‘DEL’ Message Display:
Displays “Press DEL to run Setup” in POST.

[Enabled]

[Disabled]

Interrupt 19 Capture:

[Disabled]

[Enabled]

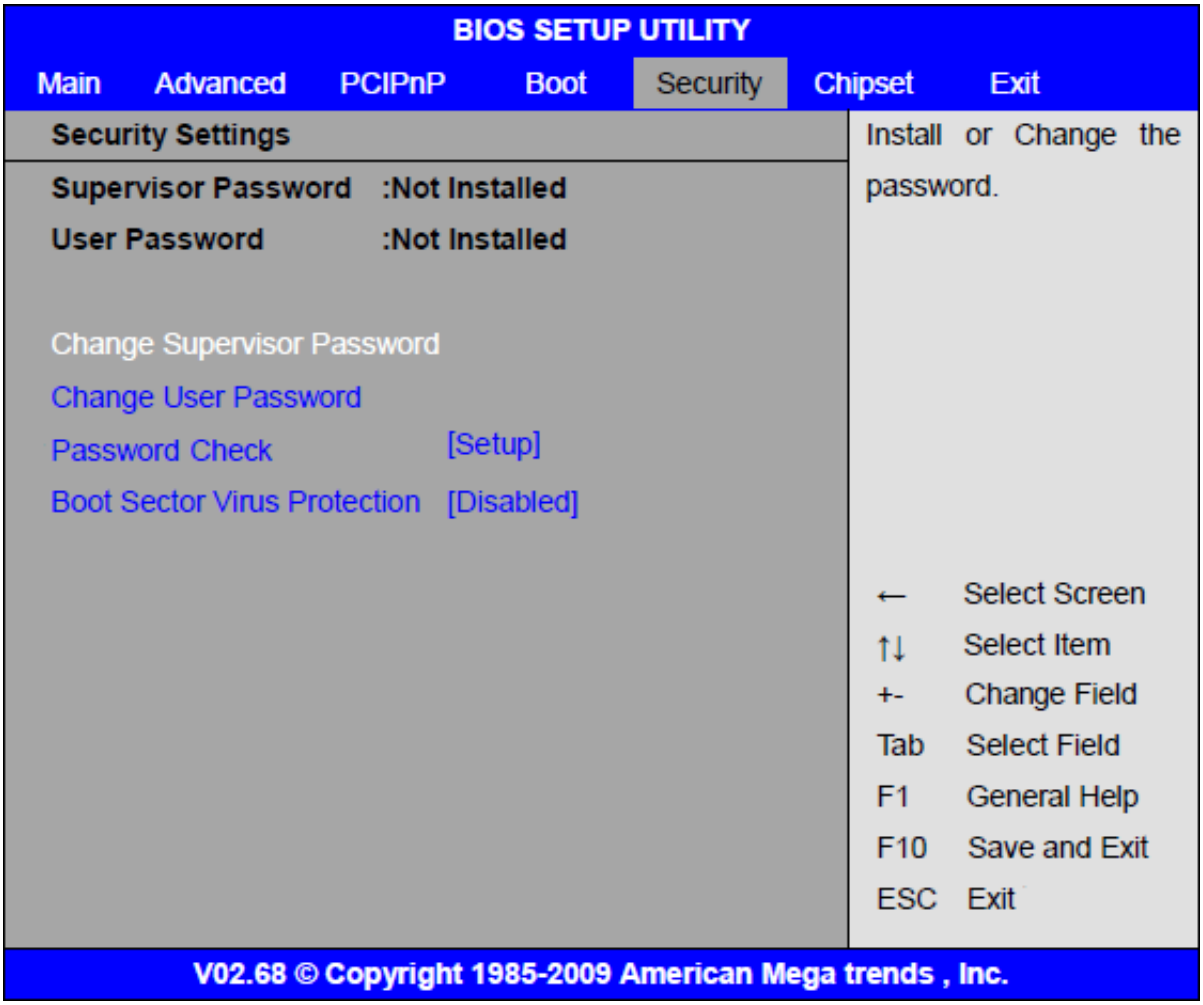
Enabled: Allows option ROMs to trap interrupt 19.

Boot Device Priority:

Specifies the Boot Device Priority sequence.

Chapter 2: BIOS Setup

2.7 Security Settings



Change Supervisor Password:

Install or Change the Supervisor password.

Change User Password:

Install or Change the User Password.

Password Check:

[Setup]

[Always]

Setup: Check password when setup is invoked.

Always: Check password on each boot and when setup is invoked.

Boot Sector Virus Protection:

[Disabled]

[Enabled]

Enables / disables Boot Sector Virus Protection.

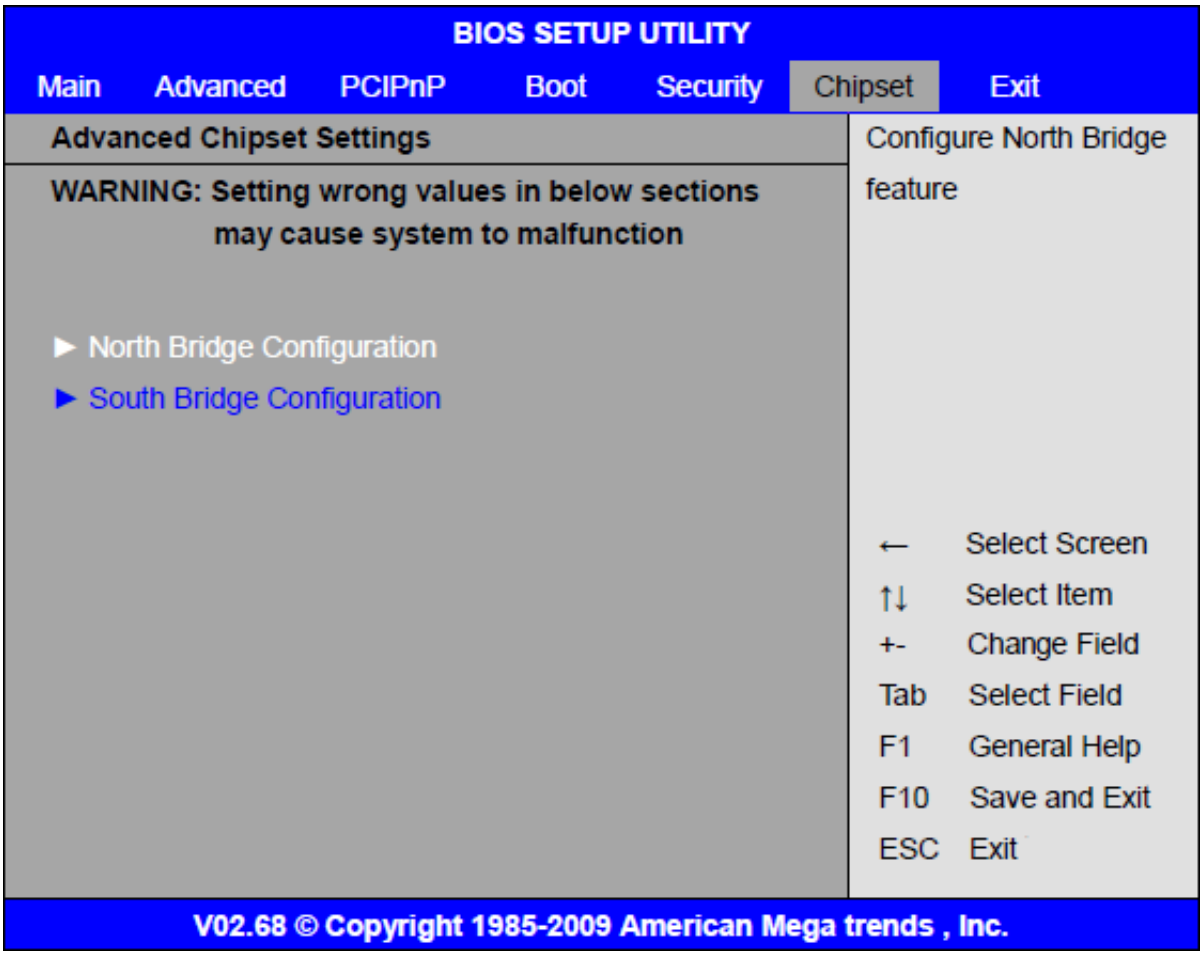
Type a password of up to 6 characters and press the [Enter] key. This will clear all previously typed CMOS passwords. You will be requested to confirm the password. Type the password again and press [Enter]. You may press the [ESC] key to abandon the password entry operation.

To clear the password, just press the [Enter] key when the password input windows pops up. A confirmation message will be shown as to whether the password will be disabled. You will have direct access to BIOS setup without typing any password after system reboot once the password is disabled.

Once the password feature is used, you will be requested to type the password each time you enter BIOS setup. This will prevent unauthorized persons from changing your system configuration.

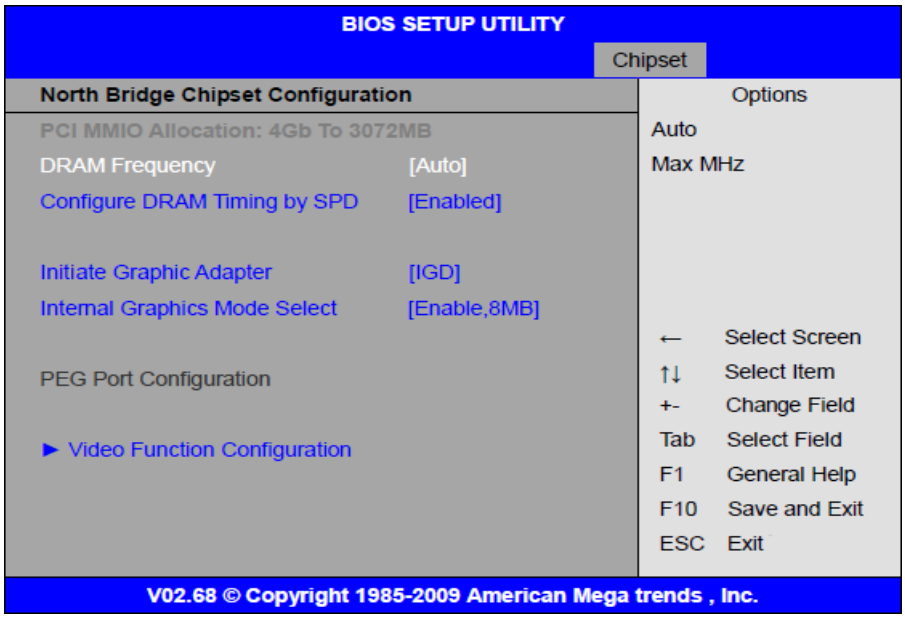
Also, the feature is capable of requesting users to enter the password prior to system boot to control unauthorized access to your computer. Users may enable the feature in the Security Option of Advanced BIOS Features. If the Security Option is set to Always, you will be requested to enter the password before system boot and when entering BIOS setup; if the Security Option is set to Setup, you will be requested to enter the password before entering BIOS Setup.

2.8 Advanced Chipset Settings



Note: Due to the limited address length of BIOS, only a portion of the panel parameters are listed in BIOS Setup. If the connected panel is not included in the parameter list, display problems will occur. In this case please do not change BIOS setup.

2.8.1 North Bridge Configuration



DRAM Frequency:

[Auto]

[Max MHz]

Configure DRAM Timing By SPD:

[Enabled]

[Disabled]

Initiate Graphic Adapter:
Select which graphics controller to use as the primary boot device

[IGD]

[PCI/IGD]

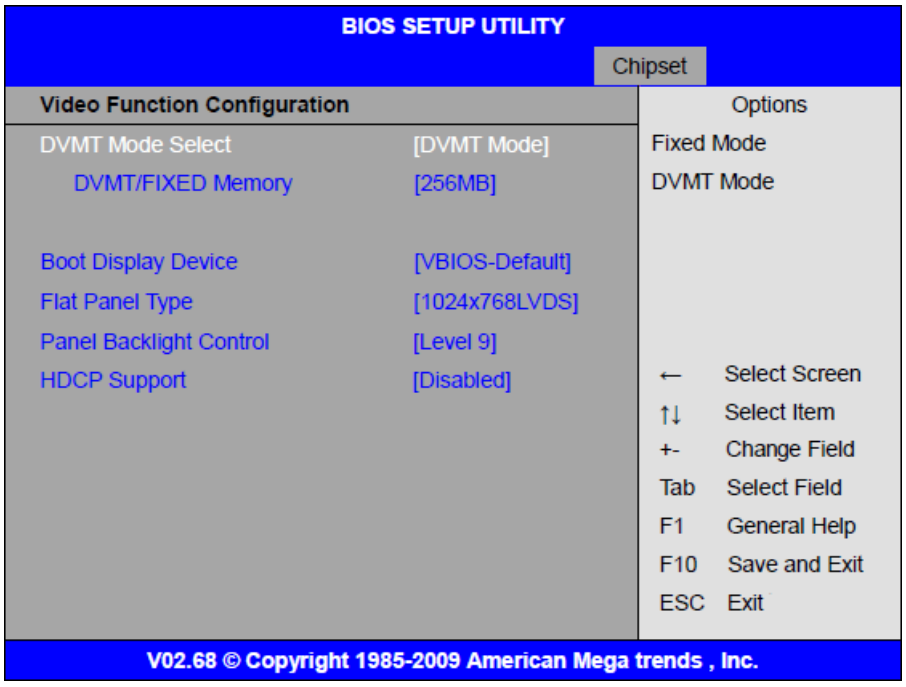
[PCI/PEG]

[PEG/IGD]

Internal Graphic Mode Select:

[Enabled, 8MB]

Video Function Configuration:



DVMT Mode Select:

[DVMT Mode]

[Fixed Mode]

DVMT/FIXED Memory Size:

[256MB]

[128MB]

[Maximum DVMT]

Boot Display Device:

[BIOS-Default]

[CRT]

[LVDS]

[CRT+LVDS]

Flat Panel Type:

[1024x768]

[640x480]

[800x600]

[1280x1024]

[1400x1050]

[1600x1200]

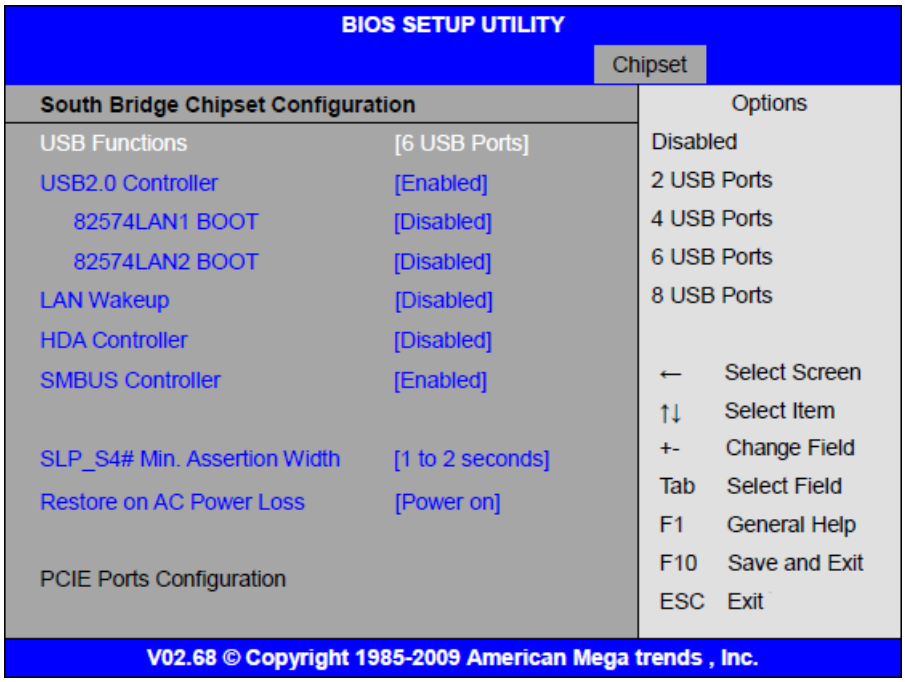
Panel Backlight Control:

[Level9]

[Level0~15]

Note: Panel supports PWM function.

2.8.2 South Bridge Configuration



USB Functions:

[6 USB Ports]
[Disabled]
[2 USB Ports]
[4 USB Ports]
[8 USB Ports]

USB 2.0 Controller:

[Enabled]
[Disabled]

82574L LAN1 Boot:

[Disabled]
[Enabled]

82574L LAN2 Boot:

[Disabled]
[Enabled]

LAN WakeUp:

[Disabled]
[Enabled]

HDA Controller:

[Enabled]
[Disabled]

SMBUS Controller:

[Enabled]
[Disabled]

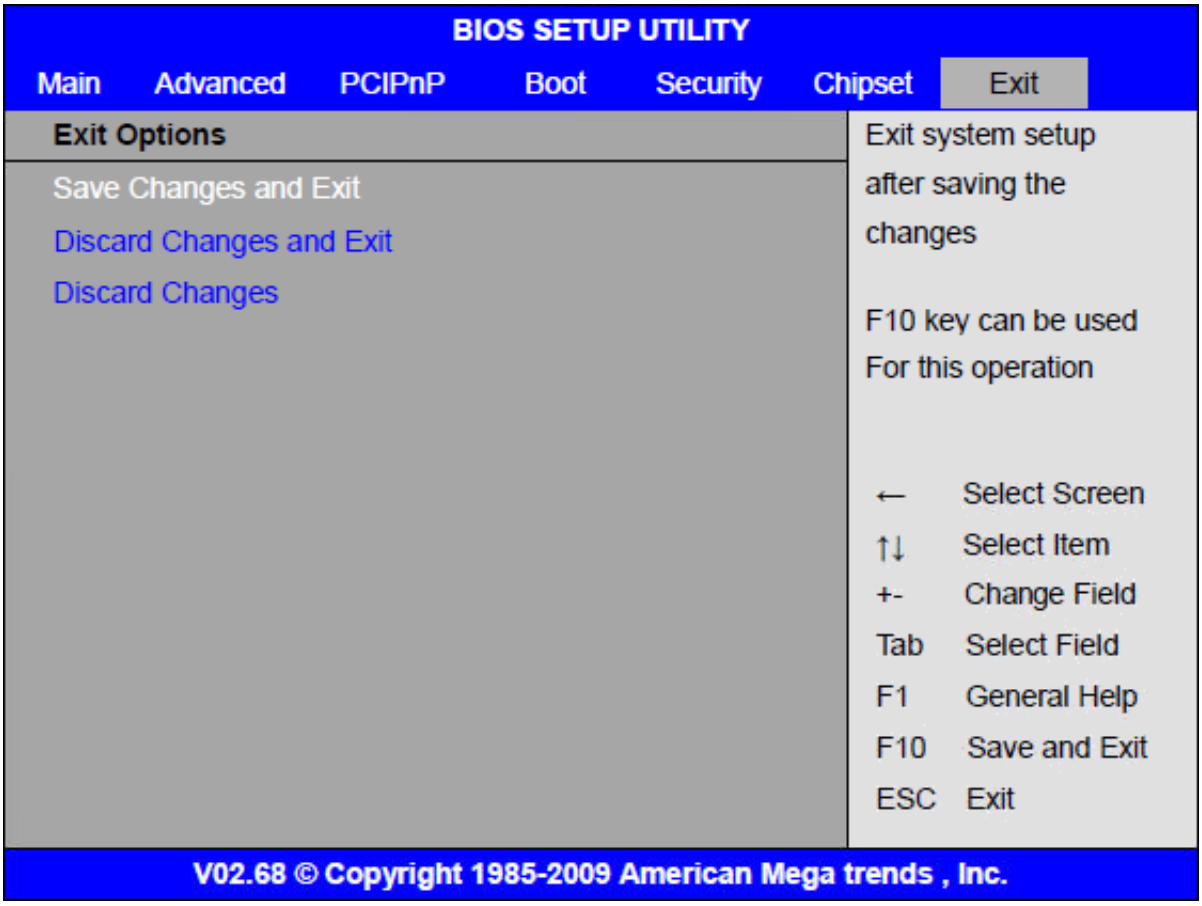
SLP_S4# Min. Assertion Width:

[1 to 2 Seconds]
[4 to 5 seconds]
[3 to 4 seconds]
[2 to 3 seconds]

Restore on AC Power Loss:

[Turn On]
[Power Off]
[Last Status]

2.9 Exit Options



Save Changes and Exit:
Save configuration changes and exit setup?

[OK]

[Cancel]

F10 key can also be used for this operation.

Discard Changes and Exit:
Discard changes and exit setup?

[OK]

[Cancel]

ESC key can also be used for this operation.

Discard Changes:
Discard changes?

[OK]

[Cancel]

Load Optimized Defaults:
Load optimized defaults?

[OK]

[Cancel]

F9 key can also be used for this operation.

Load Fail-Safe Defaults:
Load fail-safe defaults?

[OK]

[Cancel]

F9 key can also be used for this operation.

3.1 Configuring the PenMount Windows 2000/XP/Vista/7 Driver

Upon rebooting, the computer automatically finds the new 9036 controller board. The touch screen is connected but not calibrated. Follow the procedures below to carry out calibration.

1. After installation, click the PenMount Monitor icon “PM” in the menu bar.
2. When the PenMount Control Panel appears, click “Calibrate”.

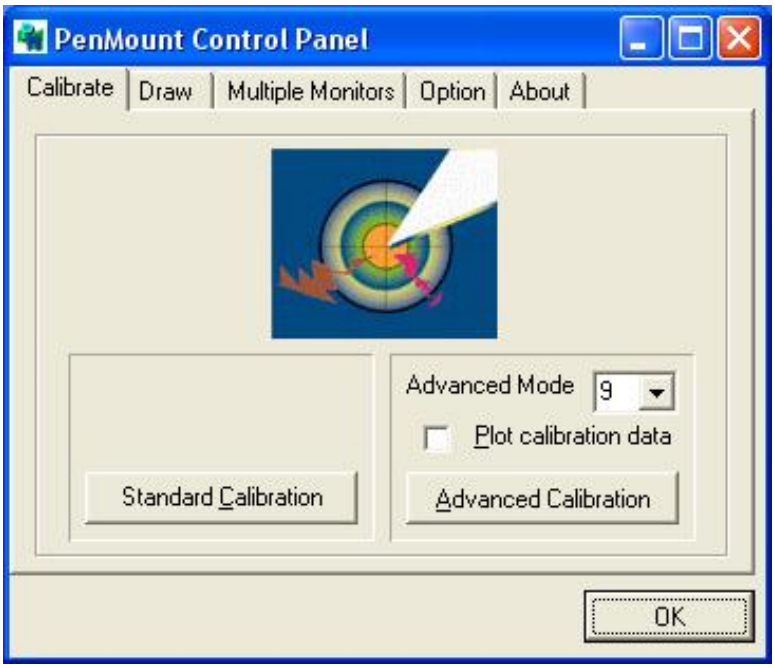
PenMount Control Panel

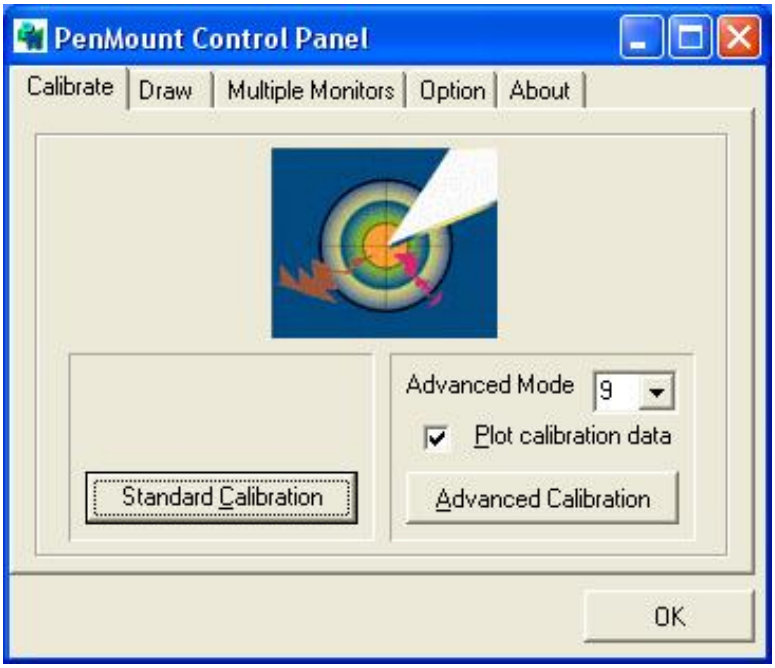
The functions of the PenMount Control Panel are **Calibrate**, **Draw**, **Multiple Monitors**, **Option**, and **About**, which are explained in the following sections.

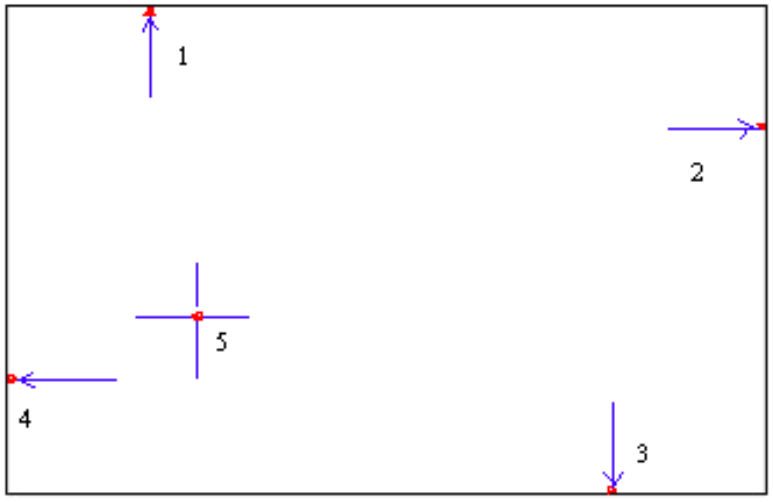
Calibrate

This function offers two ways to calibrate your touch screen. “Standard Calibration” adjusts most touch screens. “Advanced Calibration” adjusts aging touch screens.

Standard Calibration	**Click this button and arrows appear pointing to red squares. Use your finger or stylus to touch the red squares in sequence. After the fifth red point calibration is complete. To skip, press ‘ESC’.**
Advanced Calibration	**Advanced Calibration uses 4, 9, 16 or 25 points to effectively calibrate touch panel linearity of aged touch screens. Click this button and touch the red squares in sequence with a stylus. To skip, press ‘ESC’.**



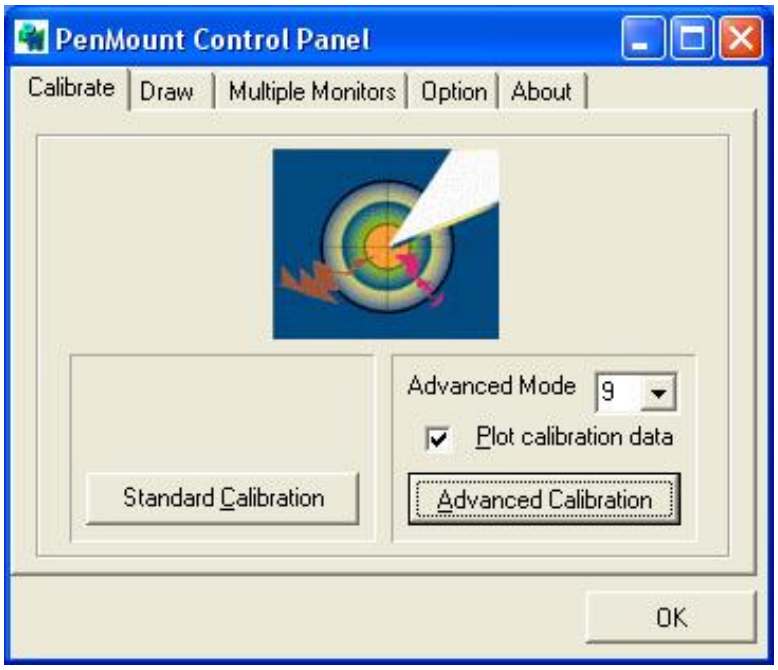


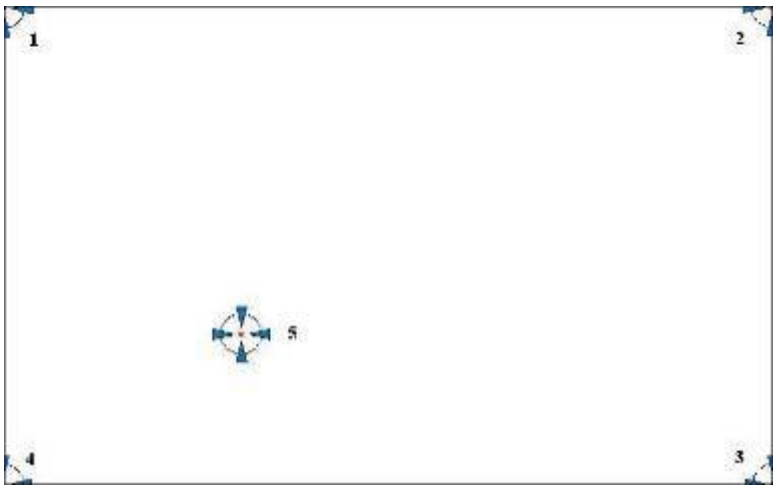


NOTE: The older the touch screen is, the more Advanced Mode calibration points you need for an accurate calibration. Use a stylus during Advanced Calibration for greater accuracy.

Plot Calibration Data

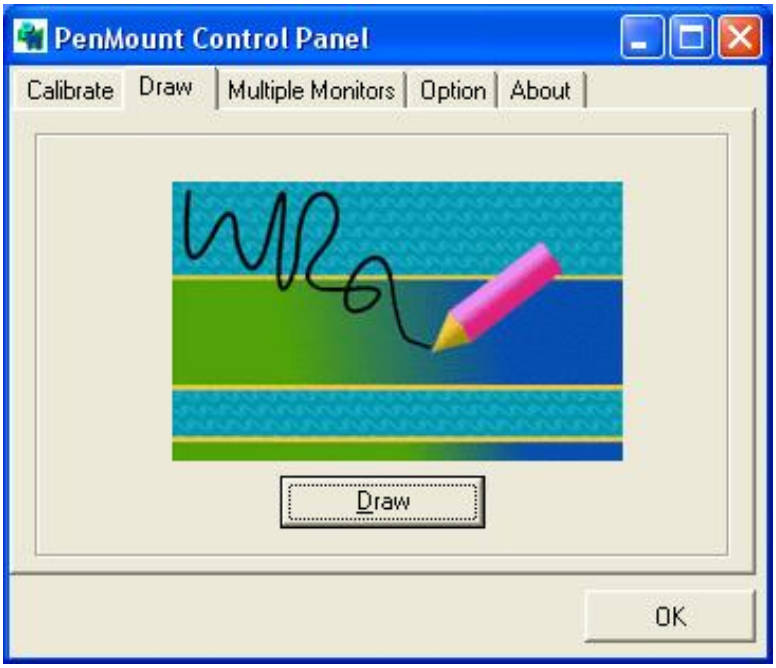
Check this function and a touch panel linearity comparison graph appears when you have finished Advanced Calibration. The blue lines show linearity before calibration and black lines show linearity after calibration.



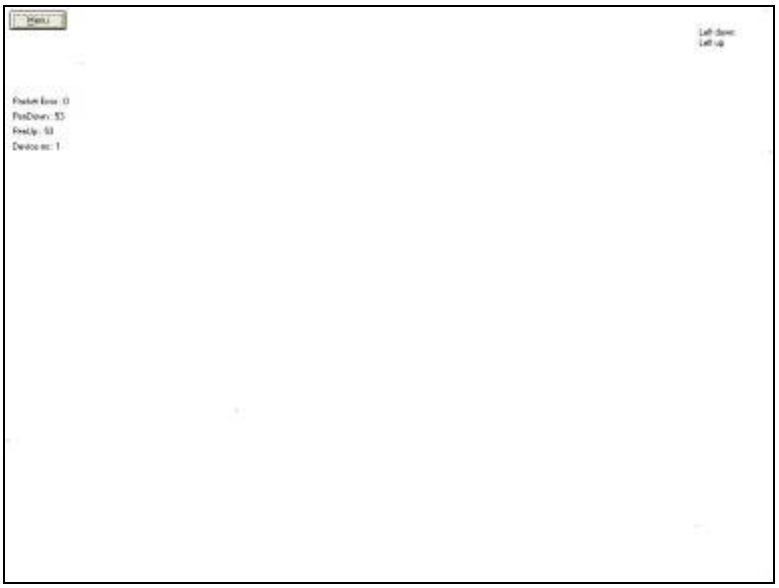


Draw

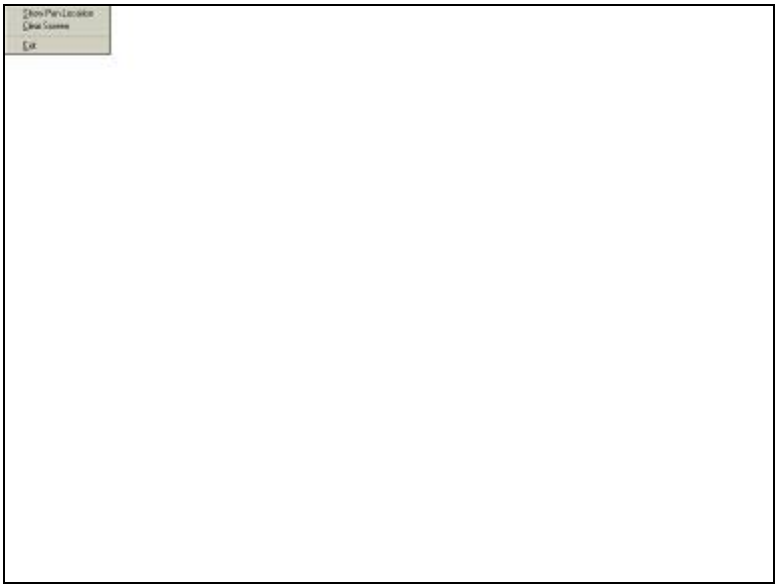
Tests or demonstrates the PenMount touch screen operation. The display shows touch location. Click **Draw** to start. Touch the screen with your finger or a stylus and the drawing screen will register touch activity such as **left**, **right**, **up**, **down**, **pen up**, and **pen down**.



Touch the screen with your finger or a stylus and the drawing screen will register touch activity such as **left**, **right**, **up**, **down**, **pen up**, and **pen down**.



Click Clear Screen to clear the drawing.



Multiple Monitors

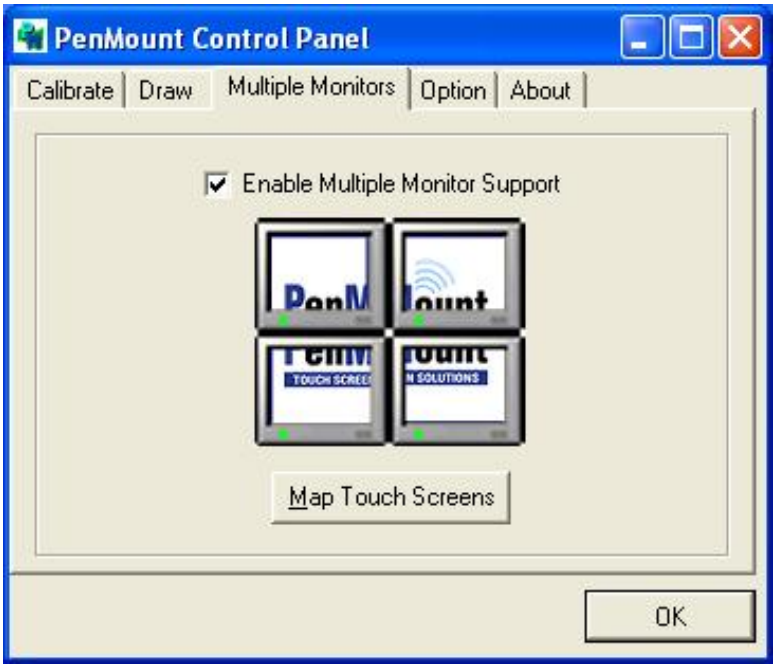
Multiple Monitors support from 2 to 6 touch screen displays for one system.
The PenMount drivers for Windows 2000/XP/Vista/7 support Multiple Monitors. This function supports from 2 to 6 touch screen displays for one system. Each monitor requires its own PenMount touch screen control board, either installed inside the display or in a central unit. The PenMount control boards must be connected to the computer COM ports via the RS-232 interface. Driver installation procedures are the same as for a single monitor. Multiple Monitors support the following modes:

Windows Extends Monitor Function
Matrox DualHead Multi-Screen Function
nVidia nView Function

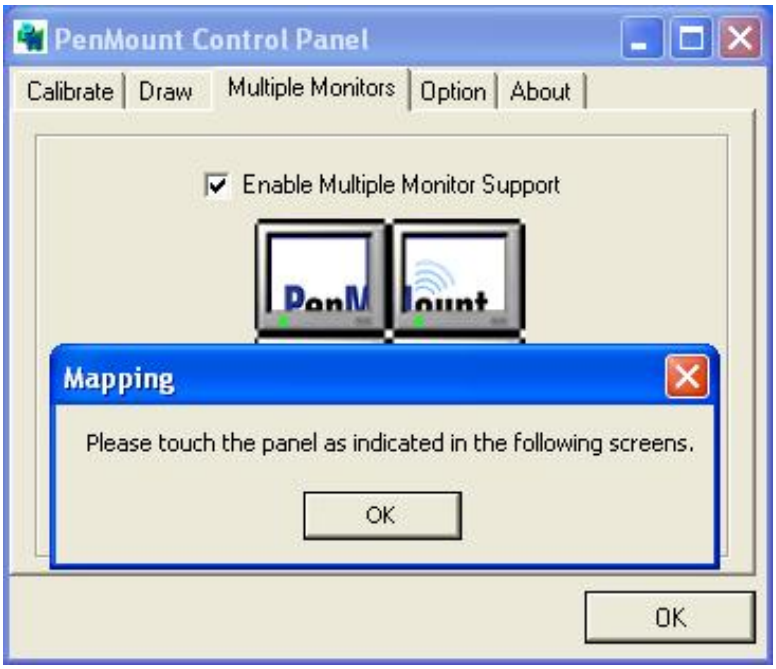
NOTE: The Multiple Monitor function is for use with multiple displays only. Do not use this function if you have only one touch screen display. Please note once you turn on this function the rotating function is disabled.

Enable the multiple display function as follows:

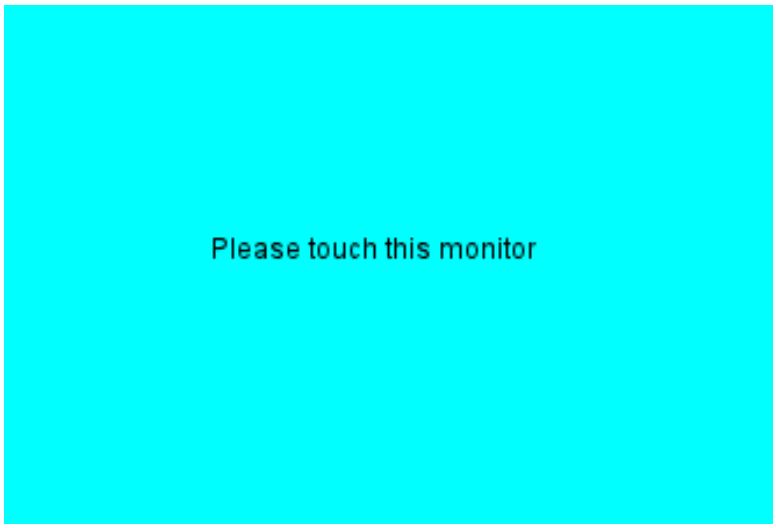
1. Check the **Enable Multiple Monitor Support** box; then click **Map Touch Screens** to assign touch controllers to displays.



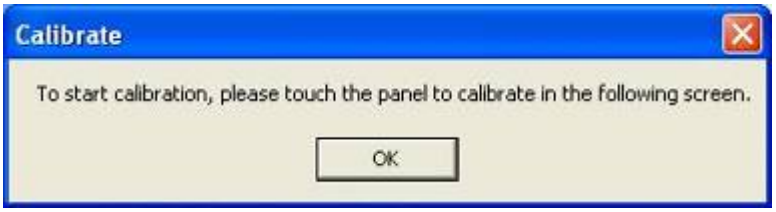
2. When the mapping screen message appears, click OK.



3. Touch each screen as it displays “Please touch this monitor”. Following this sequence and touching each screen is called **mapping the touch screens**.



4. Touching all screens completes the mapping and the desktop reappears on the monitors.
5. Select a display and execute the “Calibration” function. A message to start calibration appears. Click OK.



6. “Touch this screen to start its calibration” appears on one of the screens. Touch the screen.
7. “Touch the red square” messages appear. Touch the red squares in sequence.
8. Continue calibration for each monitor by clicking **Standard Calibration** and touching the red squares.

NOTES:

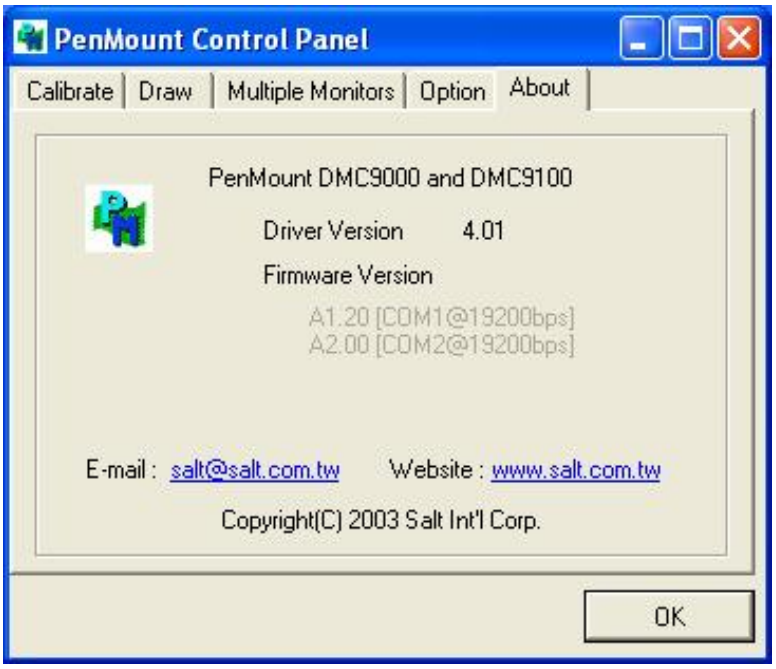
1. If you use a single VGA output for multiple monitors, please do not use the **Multiple Monitor** function. Just follow the regular procedure for calibration on each of your desktop monitors.

2. The Rotating function is disabled if you use the Multiple Monitor function.

3. If you change the resolution of display or screen address, you have to redo **Map Touch Screens,** so the system understands where the displays are.

About

This panel displays information about the PenMount controller and this driver version.



PenMount Monitor Menu Icon

The PenMount monitor icon (PM) appears in the menu bar of Windows 2000/XP system when you turn on the PenMount Monitor in the PenMount Utilities.

The PenMount Monitor has the following functions:

Beep **Turns beep on or off.**

Right Button	**When you select this function, a mouse icon appears in the right-bottom of the screen. Click this icon to switch between Right and Left Button functions.**

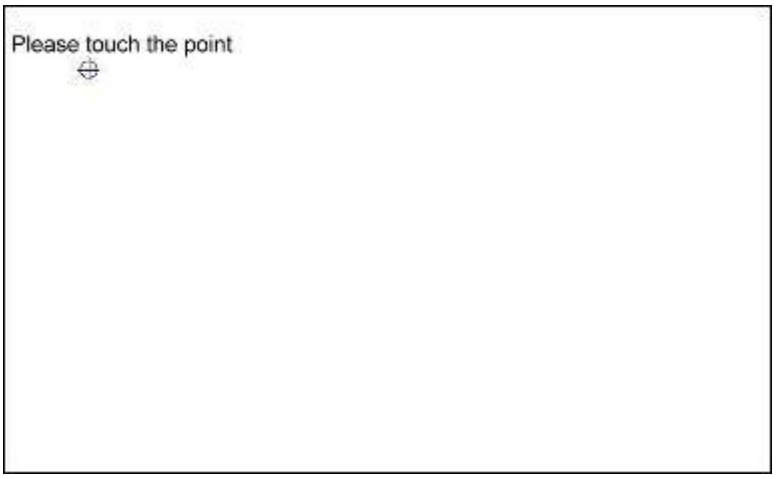
Pen Stabilizer	**Check this function to reduce cursor vibration for relatively unstable touch screens, or where there may be excess vibration. Normally this function is not checked.**
Exit	**Exits the PenMount Monitor function.**

PenMount Rotation Functions

There are currently a number of software packages on the market that support rotating monitors 0°, 90°, 180°, and 270°. However you will not be able to use a touchscreen unless it is matched to the appropriate rotation. Our rotation configuration function allows you to easily match the touchscreen when you rotate your monitor.

If you use a rotating monitor you will need a display card such as from **nVidia**, **Intel**, **SMI** or **ATI** and software such as **Portrait Pivot Pro**. For software operation and features, please refer to your software manual.

Configuring the rotation function is easy. Select this option and a ‘point’ appears for you to touch. Once the point is touched the software driver understands which degree you plan to rotate your display. The rotation function supports 90, 180 and 270 degree rotation.



NOTE: The rotating function is disabled if you use Monitor Mapping

Chapter 4: Software

4.1 Software Functions

This chapter describes the special software functions that configure and adjust the PenMount controller board and touch screen hardware. Please note that not all of the functions are available for every driver. Software functions and their availability for specific interface and systems are shown in the table below—a description for each function follows:

Software Function	DOS	Win 3.1	95	98/ME	NT	2000/XP /2003/	VISTA/7	CE	Linux	QNX
Standard Calibration	●	●	●	●	●	●	●	●	●	●
Advanced Calibration				●	●	●	●	●	●	
Multiple Monitors						●				
Multi Device						●	●			
Rotation			●	●	●	●				
Operation Mode				●		●				
Drawing mode	●	●	●	●	●	●	●	●		
Beep Sound	●	●	●	●	●	●			●	●
Beep sound adjustable				●		●				
Wake up function				●		●	●			
Showing linearity				●		●	●			
Right button		●	●	●	●	●		●	●	●
Hide cursor	●	●	●		●					
Double click area and speed adjustable			●		●	●				
About		●	●	●	●	●	●			
Edge Compenstation						●	●			
Refresh						●	●			

Note: With PenMount Windows Universal V2.2.0.283 and later versions, the touchscreen is automatically installed as a digitizer device in Windows Vista/7, the functions which are built within Windows Vista / 7 such as rotation, multi-monitors, flicks, and context menu function (which launches a context menu by user's long-pressing on touchscreen rather than clicking the right-mouse button or pressing the application key on the keyboard) will be supported.

4.2 Software Function Description

Description for each of the software functions shown in the table above follows:

Standard Calibration

The Standard Calibration function lets you match the touch screen to your display so that the point you touch is accurately tracked on screen. Standard calibration only requires four points for calibration and one point for confirmation. Under normal circumstances, Standard Calibration is all you need to perform an accurate calibration.

Advanced Calibration

The Advanced Calibration function improves the accuracy of calibration by using more involved engineering calculations. Use this function only if you have tried the Standard Calibration and there is still a discrepancy in the way the touch screen maps to the display. You can choose 4, 9, 16 or 25 points to calibrate, though we suggest that you first try 9 points, if it is still not tracking well then try 16 or 25 points. The more points you use for calibration, the greater the accuracy. Errors in calibration may occur due to viewing angle, or individual skill, and there may be little difference in using 16 or 25 points. Note that a stylus is recommended for the most accurate results.

Multiple Monitors

Until now most touch screen systems only support one monitor, and users of multiple monitors have not been able to use touch screen systems. This situation has inspired PenMount to design and develop Multiple Monitors support using the PenMount 9036 control board and Windows 2000/XP/Vista/7 driver. Our advanced design supports from 2 to 6 monitors that can be split horizontally or vertically.

Requirements

Before using the Multiple Monitor function, you need the following:

1. A display card that supports multiple monitors such as the Matrox, nVidia, ATI, etc. (Two or more display cards supported by Windows are also OK.)
2. Two or more touch screens
3. Two or more serial ports

Before using Multiple Monitors you must have two or more monitors that are in extension mode. For display cards that support multiple monitors, we suggest you consider Matrox, nVidia, or ATI cards and inquire about operation and usability issues.

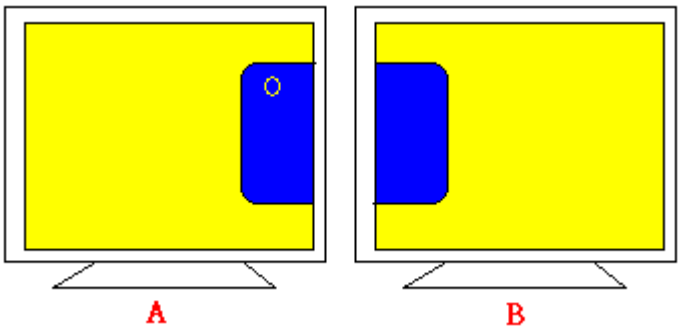
Note: Before you can use multiple monitors, you need to map each monitor.

Multiple Devices

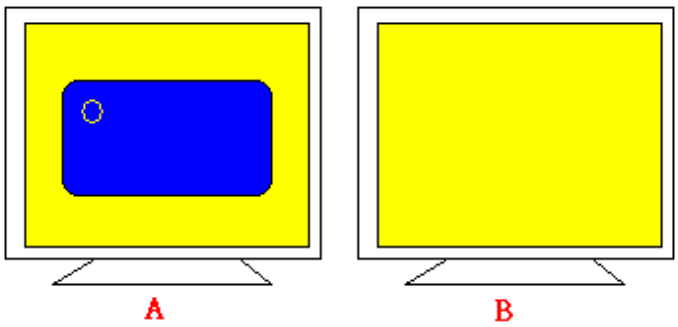
The Multiple Devices function is designed to let you use two or more monitors to display the same image.

Comparing Functions

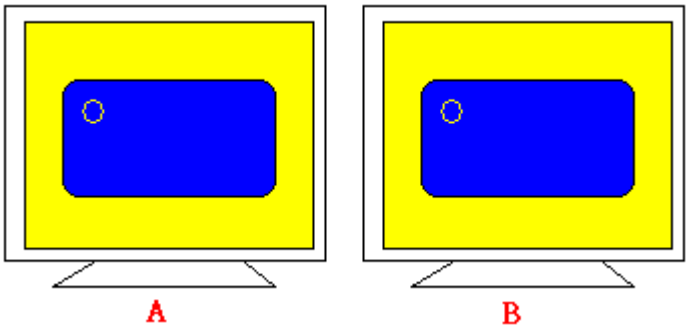
The difference between the Multiple Monitors function and the Multiple Devices function are illustrated below:



or



The Multiple Monitors function shown above extends the screen into 2 or more monitors.



The Multiple Devices function displays the same image on two or more monitors.

Chapter 4: Software

Requirements

Before using the Multiple Monitors function, you need the following:

1. A display card that supports Dual Monitors such as the Matrox, nVidia, ATI, etc., or that outputs into a 1-into-2 VGA signal box
2. Two or more touch screens
3. Two or more serial ports or USB ports

9000 Control Boards

To use multiple devices with 9000 Control Boards:

1. Configure your computer hardware.
2. Attach each 9000 Control Board to a different computer's serial port.
3. Install the appropriate PenMount software driver in each computer.
4. Use each driver's Calibration function to calibrate each computer's touch screen. You must calibrate each touch screen before configuration is complete.

Rotation

There are currently a number of software packages on the market that support rotating monitors 0°, 90°, 180°, and 270°. However, you will not be able to use a touch screen unless it is matched to the appropriate rotation. Our rotation configuration function allows you to easily match the touch screen when you rotate your monitor.

If you use a rotating monitor, you will need a display card such as from nVidia, Intel, MSI or ATI and software such as Portrait Pivot Pro. For software operation and features, please refer to your software manual.

Configuring the rotation function is easy. Select this option and a 'point' appears for you to touch. Once the point is touched, the software driver understands which degree you plan to rotate your display. The rotation function supports 90, 180 and 270 degrees rotation.

0 degrees

90 degrees

180 degrees

270 degrees

Stream/Point Mode

Stream and point modes control the touch and drag function of the touch screen. The point mode only allows “touch” interaction with the screen and does not allow the user to drag objects. The point mode is useful for maintaining the location of screen icons such on POS terminals. The stream mode allows a user to touch and drag icons and other items around on the screen, similar to using a mouse.

Drawing Mode

Drawing mode is a utility that lets the user draw on the screen using a finger or stylus. This allows the user to test the touch screen and touch controller to see if it is operational or is mapped correctly. The drawing mode can display either the matrix address of points touched or just show lines drawn. One of the PenMount driver’s strengths is a special mathematical algorithm that minimizes the occurrence of noise and smooths the drawing of lines.

Beep Sound

All of PenMount’s drivers support the beep sound function; however, some PC systems may only offer a fixed buzzer sound.

Beep Sound Adjustable

Software drivers for Windows systems let the user adjust the frequency and length of the beep sound. The drivers let the user adjust the desired touch screen sound, as well as turn the sound off.

Wake Up Function

The Wake Up function lets the user touch the screen and wake the system up from ‘suspend’ mode.

Point Calibration Data

The Plot Calibration Data function displays the touch screen linearity map, which is available if the PenMount driver provides an Advance Calibration function when touch screens age their touch linearity declines. This non-linearity is apparent when the touched point on the touch screen is not the same as the point on the display. The plot calibration data function shows the linearity status of the touch screen. This is only a support function for the user. The exact linearity of a touch screen requires a linearity test machine.

Right Button

The Right Button function simulates the right button function of a mouse. Click the right button and the user can only touch the screen once and the driver changes the touch definition to the left button.

Hide Cursor

The Hide Cursor function keeps the cursor arrow and other cursor symbols from appearing when using the touch screen. The cursor appears when the user turns this function off.

Cursor Offset

The Cursor Offset function lets the user adjust the position of the touch point to a desired location away from the real touch point.

Double-Click Area and Speed

The Double-Click Area and Speed function lets the user adjust the double-click area and speed to their personal preference.

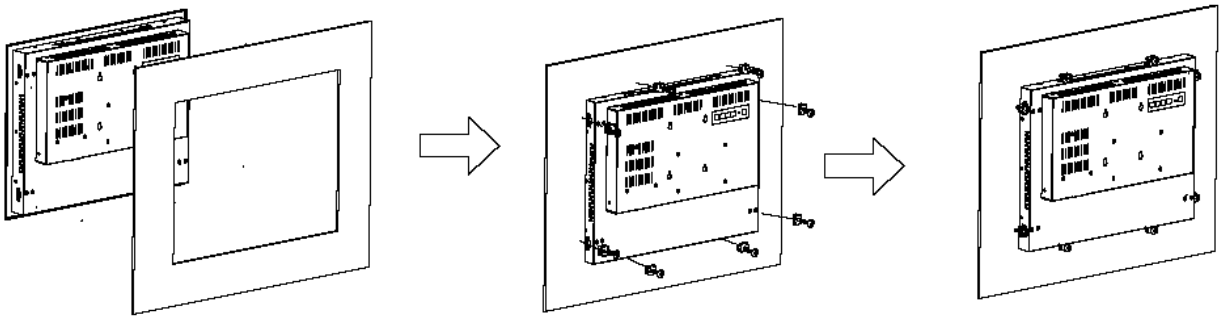
About

This option shows the exact version of the drivers and controller firmware. Updated drivers are available for download on the PenMount website.

Appendix A: Panel Mounting

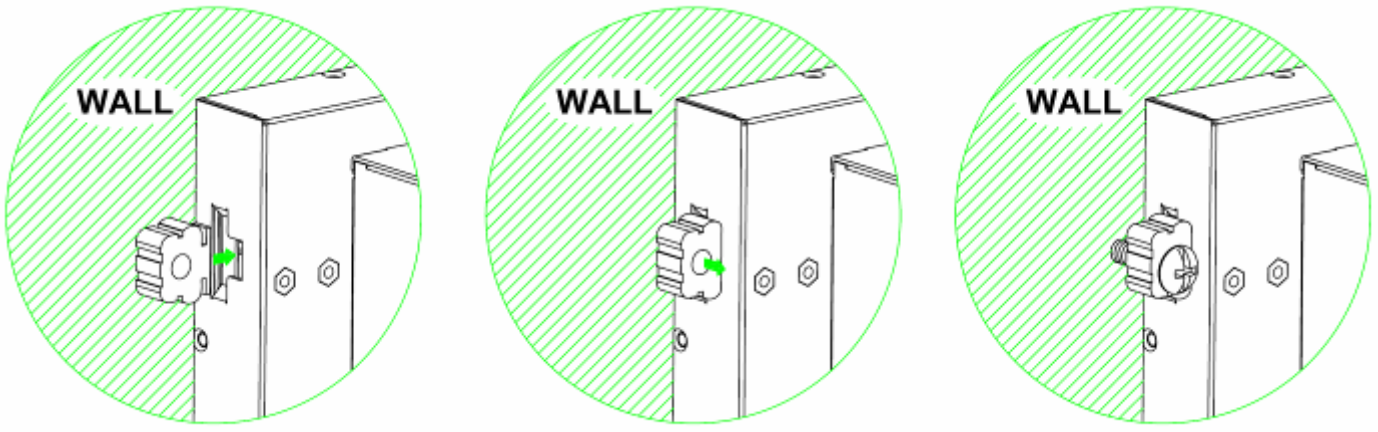
Panel Mounting

The IMP-A1x2 industrial panel PC is designed to be panel-mounted as shown below. Just carefully place the unit through the hole and tighten the given 8 screws from the rear to secure the mounting.



Panelmounting of the IMP-A1x2

How to Mount



1. Just insert the bracket into the hole

2. Slightly push the bracket back as the arrow shows.

3. And screw it tight.

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